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Predictors of the Risk for Aberrant Drug-Related Behavior in Chronic Pain Patients:

A Mixed Methods Design

A Dissertation

Presented to

the Faculty of the Morgridge College of Education

University of Denver

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

By Courtney R. Morris

August 2014

Advisor: Cynthia McRae, PhD

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ABSTRACT

The use of opioids for the treatment of chronic non-cancer pain (CNCP) remains controversial (Manchikanti, 2008; McQuay, 1999). Controversy surrounds the type of conditions that should be treated with opioids, whether the treatment can be generally safe and effective, and what the clinical goals should be. If providers can predict those patients who will be most at risk for aberrant drug-related behavior, efficacious changes in chronic pain management could be initiated and fewer patients potentially at risk for addiction. The current study explored the role of self-efficacy of pain, severity of depressive symptoms, perceived social support, and ethnic identity as predictors for the risk of aberrant drug-related behavior in CNCP patients. 102 CNCP patients being treated at a large, metropolitan health care clinic were invited to participate in this study. Qualitative data were conducted with the use of grounded theory methodology and data were collected from 10 participants out of the total sample.

A two-way ANOVA found non-significant effects of sex, ethnicity and the interaction between sex and ethnicity for both groups of participants, CNCP patients prescribed opioids and those who were not. This suggests that all other statistical findings are generalizable across gender and across white and Hispanic populations. A hierarchical logistic regression analysis predicted group membership in participants prescribed opioids and those who were not. Participants' level of pain self-efficacy was

the only statistically significant predictor for distinguishing whether participants were prescribed opioids. Results from a hierarchical multiple regression, the main foci of this study, indicated that two predictor variables (level of depression and level of pain self-efficacy) in participants on opioids contributed significantly to the explanation of patients being at risk for opioid misuse. Additionally, three predictor variables (level of depression, level of perceived social support, and level of ethnic identity) in participants not prescribed opioids, contributed significantly to the explanation of patients being at risk for aberrant drug-related behavior.

Following in-depth analyses of 10 interviews, 43 open, 9 axial, and 5 selective grounded theory categories emerged. Three domains found described the grounded theory. These three domains include (1) The Nature of Chronic Pain, (2) Professional Treatments used for the Management of Chronic Pain, and (3) Coping with Chronic Pain. The nature of participants' chronic pain included onset, pain sites, diagnoses, longevity, description of sensations, associated mood, and the impact of stress on levels of pain. All of these aspects contributed to patients' descriptions of pain, satisfaction with treatments for pain and the management of chronic pain. Patients' relationships with physical health and mental health providers contributed to their satisfaction of pain management. Injections, physical therapy and psychotherapy were found to be the most valuable professional treatment methods. Moreover, self-coping strategies for chronic pain management included drug treatments and non-medication treatments. The most efficacious non-medication strategies found were social support, heat, exercise, physical therapy, pleasant activities and distraction. Drug treatments found to be the most

beneficial included opioids, nonsteroidal anti-inflammatory drugs, antidepressants and cannabis.

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CHAPTER ONE: INTRODUCTION

What predicts aberrant drug-related behavior in chronic pain patients?

Chronic pain is a leading cause of disability and aggregates roughly \$100 billion dollars a year in health care costs. The prevalence rates of chronic pain in the general population are high. An estimated prevalence of chronic pain affects roughly 10% (Verhaak, Kerssens, Dekker, Sorbi & Bensing, 1998) to almost 20% (Gureje, Simon, & Von Korff, 2001) of Americans. Chronic noncancer pain (CNCP) has been found to negatively impact patients' functional capacity and quality of life (Stewart, Ricci, Chee, Morganstein & Lipton, 2003; Verhaak et al., 1998), cause devastating consequences to patients and families, produce high rates of health care utilization, and develop huge societal costs related to lost work productivity (Chou, Ballantyne, Fanciullo, Fine & Miasowski, 2009; Dworkin & Sherman, 2001). Major medical associations designated pain severity as the "fifth vital sign" due to the widespread recognition that pain can have such an influence on health (Fishman, 2005). Moreover, to further signify the importance of the assessment and management of pain in the U.S., the first decade of the 21st century was declared the Decade of Pain Control and Research in a joint effort made by the Pain Care Coalition (the American Pain Society, the American Academy of Pain Medicine, and the American Headache Society) Senator Orrin Hatch, and was signed by President Clinton in a bill in 2000 (Chou et al., 2009; Gatchel et al., 2007).

The use of opioids for the treatment of CNCP remains controversial (Manchikanti, 2008; McQuay, 1999). Despite the advances in pain medicine, decrease in

pain severity and improvements in physical functioning in some patients with CNCP (Furlan, Sandoval, Mailis-Gagnon & Tunks, 2006; Kalso, Edwards, Moore & McQuay, 2004), there is still considerable controversy surrounding the type of conditions that should be treated with opioids, whether the treatment can be generally safe and effective in selected patients, and what the clinical goals should be (Ballantyne & LaForge, 2007; Rosenblum, Marsch, Joseph & Portenoy, 2008; Streltzer & Johansen, 2006; Stretzler & Kosten, 2003). Uncertainty remains in understanding long-term benefits and harm of opioids for CNCP (Chou et al., 2009; Noble, Tregear, Treadwell, & Schoelles, 2008). Opioids are not always effective and are affiliated with important potential physiologic harm and adverse side effects such as hyperalgesia (Angst & Clark, 2006), hypogonadism and sexual dysfunction (Abs, Verhelst, Maeyaert, et al., 2000), and most notably, drug misuse, abuse, and diversion (Bernstein, Stowerr, Haggard et al., 2007; Department of Health and Human Services, 2005; Robinson, Gatchel, Polatin et al., 2001; Turk Swanson, & Gatchel, 2008).

The term opioid refers to all compounds that bind to specific proteins called opioid receptors. The term opiate, is conventionally used to describe opioids that are derived from the opium poppy plant, such as morphine and codeine. Opioids include all drugs that are synthesized from naturally occurring opiates (such as heroin from morphine and oxycodone from thebaine), as well as synthetic opioids such as methadone, fentanyl, and propoxyphene. A plethora of opioids have been commercialized for oral, transdermal and intravenous administration. Oral and transdermal formulations include combination products; for example, hydrocodone and acetaminophen (Vicodin or Lorset) or oxycodone and acetaminophen (Percocet or Percodan). In addition, there are a number of

single entity formulations: morphine (Kadian, MS Contin), oxycodone (OxyContin), fentanyl, hydromorphone, oxymorphone and methadone (Rosenblum, Marsch, Joseph & Portenoy, 2008).

Opioid receptors are widely distributed and the receptors most involved in pain modulation are located in the central nervous system and the peripheral nervous system. When an opioid for pain binds to receptors, analgesia occurs and may also be accompanied by a diverse array of side effects. The most common side effects include: reduced peristalsis (leading to constipation) and itch, pupillary constriction, drowsiness, mental clouding, and respiratory depression (Jaffe & Jaffe, 2004; Jaffe & Martin, 1990). Central nervous mechanisms also lead to changes associated with hyperalgesia and decreased responsiveness to opioids, known as tolerance (Rosenblum, Marsch, Joseph & Portenoy, 2008). Researchers speculate that opioid-induced hyperalgesia leads to increased pain severity in some situations (DeLeo, Tanga, & Tawfik, 2004). Additionally, activation of other central nervous system pathways from opioid use have been found to produce mood effects of dysphoria or euphoria (Rosenblum, Marsch, Joseph & Portenoy, 2008).

Concerns about addiction have apparently contributed to the undertreatment of disorders widely considered to be appropriate for opioid therapy, including cancer pain, palliative care, and acute pain (Breitbart et al., 1998; Field & Cassel, 1997; Portenoy & Lesage, 1999; Schnoll & Weaver, 2003; Smith et al., 2008). A major shift occurred and the pendulum swung during the 1990s as the use of opioids for CNCP began to increase, showing a substantial year-to-year rise that continues today. Prescriptions for opioids continue to rise in the U.S. due to their increased use in patients with CNCP (Caudill-

Slosberg, Schwartz, & Woloshin, 2004; Olsen, Daumit, & Ford, 2006). This increased use of opioids for legitimate medical purposes has been accompanied by a substantial increase in the prevalence of nonmedical use of prescription opioids (Zacny et al., 2003). The National Survey on Drug Use and Health reported that the number of first time abusers of prescription opioids increased from 628,000 in 1990 to 2.4 million in 2004, emergency room visits involving prescription opioid abuse increased by 45% from 2000 to 2002, and that treatment admissions for primary abuse of prescription opioids increased by 186% between 1997 and 2002 (Rosenblum, Marsch, Joseph & Portenoy, 2008; SAMHSA, 2004a, 2004b).

Since the beginning of the 20th century advances in pain research have been ignited and new developments in the way opioids are being used for the treatment of pain and addiction are burgeoning (Ballantyne, 2006; Corbett, Henderson, McKnight, & Paterson, 2006). These include attempts among several nations and international organizations to control the distribution and use of opioids (Musto, 1999), the introduction of opioid maintenance therapy for the treatment of opioid addiction (Courtwright, Joseph, & DesJarlais, 1989; Strain & Stitzer, 2006), the recognition that pain is a debilitating and destructive disease, and that opioids are the most effective drugs for the relief of pain and suffering (Portenoy et al., 2004; Rosenblum, Marsch, Joseph & Portenoy, 2008).

Research suggests that 2.8% to 62.2% of CNCP patients may exhibit problematic opioid use, including seeking prescriptions from multiple prescribers, forging prescriptions, preoccupation with obtaining more opioids despite evidence of adequate analgesia of pain, and unsanctioned dose escalations (Ballantyne & Laforge, 2007;

Chabal, Erjavec, Jacobson et al., 1997; Cowan, Wilson-Barnett, Griffiths, et al., 2003; Fishbain, 1996; Katz & Fanciullo, 2002; Martell, O'Conner, Kerns et al., 2007; Michna, Jamison, Pham et al., 2007). Abuse of prescription opioids is increasing concurrently as the number of prescriptions rise (Reid, Engles-Horton, Weber et al., 2002; Soderstrom, Dischinger, Kerns et al., 2001). Notably, abuse of prescription opioids rose 71% between 1997 and 2002 (Gilson, Ryan, Joranson et al., 2004). Despite the growing number of prescriptions for CNCP (Joranson, Carrow, Ryan et al., 2002; Joranson, Gilson, Dahl et al., 2002) many physicians prescribe opioids without adequate understanding of the risks for misuse and abuse (Ballantyne & Mao, 2003; Turk, Swanson, & Gatchel, 2008). Reid and colleagues (2002) reported that prevalence rates of opioid dependence at two primary care clinics were between 24% and 31%. On the basis of urine toxicology screens, Katz and Fanciullo (2002) determined that the rates of opioid misuse in CNCP were comparable to Reid et al (2002) ranging from 20% to 40%. Moreover, retrospective studies indicate that more than 43% of CNCP patients who were prescribed long-term opioids misused their medication (Fishbain, Cutler, Rosomoff, 1999; Katz, Sherburne, Beach et al. 2003; Michna, Jamison, & Pham et al., 2007).

While the increase in prescription drug abuse is likely multifactorial, Compton and Volkow (2006) suggested that changes in available drug formulations and prescribing practices of opioid medications most likely have had a great impact. This link between increased medical use and increased abuse has spurred reexamination of the medical role of these drugs. It has been suggested that only in the aftermath of the threats posed by media coverage of oxycodone (Hancock & Burrow, 2002; Spake, 2001) has greater attention been paid to the urgency and pertinence of these issues. Some

researchers infer an unfortunate coincidence that the increased use of opioids occurred at the same time that reimbursement for psychological and rehabilitative approaches to pain management were harder to come by. Furthermore, while the development of newer sustained-release opioids may have in some ways revolutionized the field, for more complicated patients they are not a stand-alone substitute for comprehensive management (Passik & Kirsch, 2003).

Physicians accept that it is not considered legal, ethical or good medical practice to withhold opioids from patients whose lives could be improved with treatment. Conversely, it is understood that opioid efficacy can diminish over time and that open-ended dose escalation does not overcome tolerance. Pain research indicates how little is understood about the complex relationship between pain, analgesia and addiction, which has prompted the adoption of structured management protocols that aim to minimize addiction (Ballayntyne, 2006). Concerns about efficacy and addiction have prompted an urgent search to discover more about the basic mechanisms of opioid analgesia, tolerance, dependence and addiction. Insidious opioid complications, such as hormonal suppression, that potentially worsen pain's disability, have emerged as a valid reason for keeping doses within a moderate range (Ballayntyne, 2006).

Clinicians have reported behaviors that they believe are indicative of opioid misuse: (1) forging prescriptions, (2) stealing or borrowing drugs, (3) frequently losing prescriptions, and (4) resisting changes to medication, despite adverse side effects. These conditions have been found more predictive than (1) aggressive complaining about the need for more drugs, (2) drug hoarding, and (3) unsanctioned dose escalations or other forms of noncompliance, as the latter three mentioned may be indicative of poorly

controlled pain (Corey, 1996; Portenoy (1996; Turk Swanson, & Gatchel, 2008). Chabal et al. (1997) developed a checklist of risk behaviors that they reported was indicative of opioid abuse by CNCP patients being treated at a VA Medical Center. The checklist consisted of: (1) focus on opioids during treatment; (2) pattern of early refills or escalating drug use in the absence of clinical change; (3) multiple telephone calls or visits associated with opioid prescriptions; (4) pattern of prescription “problems” (e.g., lost and stolen medication); and (5) supplemental sources of opioids.

The majority of randomized clinical trials available on this topic of aberrant drug-related behaviors have focused primarily on the evaluation of the short-term benefits of opioids versus placebo in highly selected populations (Furlan et al., 2006; Kalso et al., 2004). In addition, evidence on other specific areas relevant to opioid prescribing are diffuse, such as: risk assessment before initiation of a trial of opioids, methods for initiating and titrating opioids, monitoring of patients on chronic opioid therapy, use of high-dose opioids, and the treatment of high-risk patients (Chou et al., 2009). Several recent studies recommended judicious guidelines for the use of opioids in appropriately selected patients with CNCP patients; however, most of these studies were developed using a consensus process and lacked strong evidence (Chou et al., 2009).

After conducting a thorough review of the existing literature available on the risk for opioid misuse, Turk, Swanson, and Gatchel (2008), prominent psychologists and researchers of chronic pain, found that the following are the most significant predictors: a history of polysubstance abuse, presence of a mood disorder (especially unipolar depression), younger age, and a history of legal problems. Turk, Swanson and Gatchel (2008) implied that being female was not a predictor but that the findings on being male

produced mixed results. In addition, Sullivan and fellow researchers (2006) found from a meta-analytic review that CNCP patients carrying a mental health disorder of major depression, dysthymia, generalized anxiety disorder or panic disorder in 1998 were more likely to report opioid use in 2001 than CNCP patients not carrying one of these diagnoses. Both an increase in initiation of opioid use and the continuation of opioids were found in this subset of the population. Sullivan et al. (2006) also found that respondents who reported a history of problem drug use but not problem alcohol use predicted higher reported use of opioids.

Current literature on CNCP draws a vivid connection between the comorbidity of depression and chronic pain on aberrant drug-related behaviors in chronic pain patients, suggesting that patients with depression maintain higher rates of opioid misuse (Edlund, Steffick, Hudson, Harris, Sullivan & Rick, 2007; Manchikanti et al., 2009; Wasan, Butler, Budman, & Benoit, 2007). There is a dearth of research, however, connecting ethnic identity, perceived social support, and self-efficacy to aberrant drug-related behaviors in chronic pain patients, yet some relevant literature exists. Researchers have found that cultural group influences such as higher reported levels of ethnic identity may influence greater drug use (James, Kim & Armijo, 2000; Wong & Longshore, 2008). Others have found that more positive perceived social support is related to fewer aberrant drug-related behaviors (Dunbar and Katz, 1996) and less opioid use at one-year follow-up (Wong & Longshore, 2008). Moreover, researchers have found higher reports of self-efficacy to be associated with less opioid use at one-year follow-up (Wong & Longshore, 2008), and decreased use in alcohol and cocaine (Warren, Stein & Grella, 2007).

Some physicians suggest that they can identify individuals who are vulnerable to problematic drug behaviors. However, empirical evidence regarding these “internal gut feelings” has shown otherwise (Michna, Jamison, & Pham et al., 2007; Wasan, Butler, Budman et al., 2007). For example, Wasan et al. (2007) found that physicians only judged 13.9% of CNCP patients prescribed opioids as having aberrant drug behaviors, when approximately 50% had positive urine toxicology screens for illicit drugs, and 8.7% had no evidence of any opioids in their urine samples.

Urine toxicology screens have been the “gold standard” for detecting substance use. Routine screening of CNCP before prescribing opioids and ongoing throughout the course of treatment is highly recommended (Turk Swanson, & Gatchel, 2008). However, the results must be interpreted with caution because the lack of an initial positive urine screen cannot be used as a predictor of future aberrant drug-related behaviors in all patients. Even patients with an initial negative screen may later demonstrate behaviors indicative of substance misuse (Katz, Sherburne, Beach et al., 2003). Conversely, an initial positive urine toxicology screen may not predict future aberrant behaviors. Although urine toxicology screening is effective in detecting drug misuse, the results by themselves are not sufficient (Turk, Swanson, & Gatchel, 2008). Thus, assessment of substance abuse history is important when evaluating the potential for long-term opioid treatment for CNCP patients but it is not sufficient (Turk, Swanson, & Gatchel, 2008).

Current Study

Researchers have suggested that there is a pertinent urgency to learn how to select CNCP patients for opioid therapy who are likely to achieve improvement in pain, function and quality of life, without interference from addiction (Ballayntyne, 2006).

Experts advocate the use of opioid therapy but in carefully selected patients (Kalso, Edwards, Moore et al., 2004; Katz & Fanciullo, 2002; Zancy, Bigelow, Compton, et al., 2003). The medical community aims to learn of common predictors of aberrant drug-related behaviors and utilize this knowledge through the adequate screening of these predictors in CNCP patients (Friedman, Li & Mehrotr, 2003; Turk, Swanson, & Gatchel, 2008). The knowledge gained of common predictors will assist providers in more effectively selecting individuals that will most benefit from opioid therapy and consequently instill comprehensive non-opioid therapy management to those most at risk for displaying aberrant drug-related behaviors in the CNCP population. If providers can predict those patients who will be most at risk, efficacious changes in chronic pain management could be initiated and fewer patients potentially at risk for addiction.

Turk and colleagues (2008) highlighted that a plea for further research on predictors of aberrant drug-related behaviors in CNCP patients dates back at least a quarter of a century (Gatchel, 2001). They claim that “research identifying risk factors and vulnerable CNCP subgroups have been slow in coming” (Turk, Swanson, & Gatchel, 2008, pg 506). They stated that the majority of research conducted in this area has been based on retrospective chart reviews and cross-sectional data. These researchers contend that large-scale, prospective studies are needed to confirm a “best set of predictors to assist in preventing aberrant behaviors while proving adequate analgesia” (Turk, Swanson, & Gatchel, 2008, pg 506). They suggested that future studies should carefully define the criteria that are being used to permit replication and comparison with other studies and that the population used must also be clearly articulated to permit determination of the representativeness of the sample and generalizability of results. In

general, published studies have not been representative, including small proportions of women and minority populations. A significant limitation is that the settings used were predominately outpatient clinics specializing in pain management. There were no studies examining solely new referrals to pain clinics or patients who were not already taking opioids. Thus, the results of these studies were only generalizable to patients who were already prescribed opioids (Turk, Swanson, & Gatchel, 2008).

Moreover, Turk and colleagues (2008) stated that most research thus far has not indicated the overall validity of the instruments in predicting those patients who were at risk for opioid misuse, and that out of the nine instruments reviewed, the researchers found only the SOAPP and COMM accurately assessed all of the psychometric and diagnostic domains outlined (Turk, Swanson, & Gatchel, 2008). The inclusion criteria used in many retrospective trials, and before opioid prescribing, were not always clearly specified in research (Rowbotham & Lindsey, 2007; Turk, Swanson, & Gatchel, 2008) and premature termination from such studies has been a problem, averaging over 30% (Turk, 2002). Little is known about the characteristics of those patients lost at follow-up. “Researchers must carefully describe the measures, questions, and descriptions of the variables included, and not only report on the best set of predictors, but also those variables that failed to predict misuse and abuse”, (Turk, Swanson, & Gatchel, 2008 pg 506).

The current study seeks to explore the role of self-efficacy of pain, severity of depressive symptoms, perceived social support, and ethnic identity as predictors for the risk of aberrant drug-related behaviors in CNCP patients. This is the first study of its kind that assesses this particular constellation of psychological variables as predictors for

the risk of aberrant drug-related behaviors in CNCP patients. In addition, it is the first study to assess these variables with the support of quantitative and qualitative data methods. CNCP patients being treated at a large metropolitan family health care clinic will be invited to participate in this study. Patients who have yet to be provided opioid therapy for CNCP will be provided with the Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP®-R) to assess for the risk of opioid misuse and patients already prescribed opioid medications will take the Current Opioid Misuse Measure (COMM) to assess for aberrant drug-related behaviors. Qualitative data conducted with grounded theory methods will assess the impact of the psychological variables on a deeper level and assess thoughts, feelings and fears behind the use of opioid therapy for chronic pain management of CNCP patients.

As aforementioned, there is a great need to assess the predictors for the risk of aberrant drug-related behaviors in CNCP patients. The next chapter of this thesis will cover the extent to which the psychological variables being explored in this study have been assessed and presented in the literature. Furthermore, chapter two will address the ways the variables have, if at all, been associated with the outcome variables, aberrant-drug related behaviors or the risk of opioid abuse.

CHAPTER TWO: LITERATURE REVIEW

Chronic Pain

Chronic pain is defined as a pain experience that persists for at least three months following the usual course of healing time for an acute injury, non-healing lesion, or an illness (Rosenblum, Marsch, Joseph & Portenoy, 2008; Verhaak, Kerssens, Dekker, Sorbi, & Sensing, 1998). Chronic pain has been found to affect over 50 million Americans, with musculoskeletal pain causing the greatest impact. The chronic pain experience is a highly complex phenomenon including biopsychosocial elements which may or may not be primarily driven by a tissue injury. The most common forms of chronic pain are divided into “nociceptive” and “neuropathic” pain categories. “Nociceptive” pain stems from repeated stimulation of pain receptors caused from tissue damage, and “neuropathic” pain is a term suggesting that there has been damage or dysfunction of the central or peripheral nervous system. Both acute and chronic pain experiences are activated by multiple peripheral and central mechanisms interacting with each other and with pain modulating systems. The experience of pain is subjective and profoundly influenced by psychological processing (Turk & Melzack, 2001). Chronic pain patients with identical diseases have been found to differ greatly in their reports of pain severity and pain behaviors (Aronoff, 1999). The perception and subjective experience of pain is thus caused by a neurophysiological process. In further support of this, Delou (2006) found the role of neuroimmune activation following a tissue injury as

an important mechanism in the development of chronic pain (Rosenblum, Marsch, Joseph & Portenoy, 2008).

Psychosocial and psychiatric factors such as the level of social support, cultural influences, comorbid mood disorders, and drug abuse (Gatchel, Peng, Peters, Fuchs, & Turk, 2007) have been found to play a role in the development of chronic pain.

Psychological factors have been reported to be predictive of long-term disability for many pain syndromes as well as for pain severity, emotional distress, and seeking treatment (Boothby, Thorn, Stroud, & Jensen, 1999; Johansson & Lindberg, 2000; Pfingsten, Hildebrandt, Leibing, Franz, & Saur, 1997). For example, in one study, psychosocial variables accounted for 59% of the variance in disability associated with chronic pain (Burton, Tillotson, Main, & Hollis, 1995). When studies of predictors of recovery versus continued disability were reviewed, maladaptive attitudes and beliefs, lack of social support, heightened emotional reactivity, job dissatisfaction, substance abuse, compensation status, the prevalence of pain behaviors (Turk, 1997) and psychiatric diagnosis (Gatchel & Epker, 1999) appeared to be among the best predictors of the transition from acute injury to chronic disability. It is interesting to note that physical factors, including severity of injury and physical demands of the job, did not appear to contribute as much to the prediction of chronicity (Turk & Okifuji, 2002).

Pain behavior research suggests that the social/environmental context of pain (Beecher, 1959) and cultural differences in the beliefs and attitudes toward pain (Zbrowski, 1969) have a significant impact on pain behaviors. These psychological, social, and psychiatric influences should not lead to the conclusion that a pain syndrome is primarily psychogenic. Pain conditions related to primarily psychological factors exist,

but are far less prevalent than CNCP associated with natural processes influenced by psychosocial mediators and psychiatric comorbidities (Portenoy, Payne, & Passik, 2004).

Clinicians commonly apply an acute care model to a chronic condition. There are no treatments that cure chronic pain and expecting a cure from a drug, injection, or operation has been considered “wishful thinking” (Deyo, Mirza, Turner, & Martin, 2009). These approaches risk overlooking the psychosocial, occupational, and lifestyle dimensions of chronic pain. Although evidence remains incomplete and the magnitude of benefits may be modest, data support the benefits of interventions that promote patient involvement and activity such as exercise programs and group support (Deyo, 2001; Deyo, Mirza, Turner, & Martin, 2009; Hayden, Van Tulder, Malmivaara, & Koes, 2005; Hoffman, Papas, Chatkoff, & Kerns, 2007; Lorig, Laureny, Deyo, Marnell, Minor & Ritter, 2002; Staal, Hiobil, Twisk, Koke, & Van Mechelen, 2004). These therapies also have the advantage of being low risk.

A chronic care management model acknowledges that chronic pain, like diabetes or asthma, is a condition we can treat but rarely cure. As with other chronic conditions, care of chronic pain may benefit from: sustained commitment from health care providers, involvement of patients as partners in their care, education in self-care strategies, coordination of care, and involvement of community resources to promote exercise, provide social support, and facilitate a return to work (Bodenheimer, Wagner, & Grumbach, 2002). Patients require realistic expectations despite product marketing, media reports, and medical rhetoric that promise a pain-free life. Deyo et al. (2009) made a call for future research to clarify a treatment's safety and its effects on pain, function, and return to work instead of measuring only technical successes such as solid

bony fusion or properly placed injections. These researchers made the request that providers inform CNCP patients about available treatment options, including the best available evidence for effectiveness, uncertainties, and risks, and encourage patients to collaborate in therapeutic decision making (Deyo, 2001; Deyo et al., 2009).

Depression and Chronic Pain

One of the most challenging byproducts of CNCP is emotional distress. The most prevalent emotional reactions include depression, anxiety, fear, guilt, anger and frustration. The degree to which patients can regulate their emotions has implications for their perception of pain. Negative affect is a key reason individuals associate pain with suffering. Pain activates negative emotions that range from tolerable to miserable (Craig, 2003). Negative affect is strongly associated with poor treatment outcomes and the development of disability from pain (Linton, 1976; Linton & Shaw, 2011; Main, Sullivan, & Watson, 2008).

Depression is defined as a psychological problem characterized by negative mood, hopelessness, and despair. 52% of patients with pain have been found to fulfill the criteria for depression (Bair, Robinson, Katon & Kroenke, 2003). Higher rates of patients experience depressive symptoms but do not fulfill the diagnostic criteria for major depression (Clyde & Williams, 2002). The presence of depression in a pain condition is associated with higher levels of pain intensity and is a major risk factor for disability (Bair, Robinson, Katon & Kroenke, 2003). Moreover, patients who have musculoskeletal pain and are depressed have been found to have twice the sick leave duration compared to those who have pain but are not depressed (Currie & Wang, 2004; Druss, Rosenheck & Sledge, 2000). Potential risk of long-term disability and treatment

outcome are also affected negatively (Bair, Robinson, Katon & Kroenke, 2003; Pincus, Burton, Vogel & Field, 2002; Shaw, Linton & Pransky, 2006). Research has shown that high levels of reported pretreatment depression are affiliated with poor rehabilitation outcomes (Linton & Shaw, 2011; Nicholas, 2007; Sullivan, Adams, & Thibault, 2006; Vowles, Gross & Sorella, 2004).

Successful development of self-management skills for CNCP may be more challenging for patients who concurrently experience depression. Comorbidity of depression and CNCP has been found to be present in 30% to 50% of patients (Center for Substance Abuse Treatment, 2003; Department of Health and Human Services, 2005). Depression may interfere with CNCP patients' ability to self-manage their pain (Centers for Disease Control and Prevention, 2007). Depression has been hypothesized to lead to reduced self-efficacy and lower expectations of self-management efforts of CNCP. However, there is a dearth of research on pain self-management among patients with medical and psychiatric comorbidity and little is known about the challenges these patients with comorbid conditions face (Cepeda, Camargo, Zea, & Valencia, 2006). Although some studies (Chou, Clark, & Helfand, 2003; Chou et al., 2009; Chou & Huffman, 2009) have identified barriers to effective self-management, the literature is significantly limited on the potential facilitators to self-management of CNCP.

In addition, pain patients diagnosed with major depression and other psychiatric disorders are more likely than their counterparts to initiate and continue opioid therapy (Sullivan, Edlund, Zhanf, Unutzer, & Wells, 2006) and are found to more likely misuse medication (Wasan, Butler, Budman, & Benoit, 2007; Edlund, Steffick, Hudson, Harris, Sullivan & Rick, 2007). These individuals are less likely to experience analgesic benefits

from opioid therapy (Wasan, Davar & Jamison, 2005). While depression and other psychiatric disorders are common among patients with chronic back pain (Bair, Robinson, Katon & Kroenke, 2003; Carragee, 2001; Demyttenaere, Bruffaerts, & Lee et al. 2007; Sullivan, Edlund, Zhanf, Unutzer, & Wells, 2006), patients with such disorders are commonly excluded from trials of opioid therapy which raises questions about the generalizability of efficacy studies to routine practice (Sullivan, Edlund, Zhanf, Unutzer, & Wells, 2006).

Manchikanti and colleagues (2007) found from an assessment of 500 CNCP patients prescribed and receiving stable doses of opioids that drug abuse was significantly higher in patients with depression as compared to patients without depression (12% with depression versus 5% without). In the same study, current illicit drug use was higher in women with depression (22%) than women without depression (14%). Among men in the study, with or without depression, illicit drug use was found in 12%. The patients were evaluated for psychopathology, opioid abuse, and illicit drug use during the course of regular pain management treatment.

Ethnic Identity and Chronic Pain

Ethnic identity has been defined by prominent researchers as “the subjective sense of ethnic group membership that involves self-labeling, sense of belonging, preference for the group, positive evaluation of the ethnic group, ethnic knowledge, and involvement in ethnic group activities” (Cokely, 2007; Phinney, 1992). Ethnic identity has historically been examined in psychological research from two major theoretical frameworks: social identity and developmental theory. Social identity is driven by a desire to belong to a

social group while developmental theory postulates that individuals are motivated to explore their own identity over time (Phinney & Ong, 2007).

There is a strong need for clinicians and researchers to better understand the health and health behaviors of ethnic minorities in the United States due to the prevalence of health disparities (Anderson, 1995; Cokely, 2007). In a recent review of ethnic and racial identity literature, Ponterotto and Park-Taylor (2007) proposed that it is important for researchers conducting ethnic and racial identity research to clearly define constructs used, describe rationale for appropriate instrument selection, and carefully consider sample collection.

Oyserman (2007) theorized ethnic identity from the social identity perspective, and suggested that when a behavior is adopted and leads to inclusion and acceptance of the in-group, that behavior becomes regularly espoused and integrated into identity. Behaviors can have a negative or positive health consequence depending on the specific health habit adopted. This model suggests that health behaviors are engaged in less for health consequences than for their identity inferences. Hence, health promotion activities are viewed from this model as social identity-infused habits rather than personal choices. Social identity models suggest that individuals view their world from the perspective of others from their in-group (Haslam & Reicher, 2006; Oyserman, Fryberg & Yoder, 2007). Moreover, groups may compete for self-defining characteristics and the groups with more resources are likely to have the upper hand in claiming values and in-group identifying characteristics (Blanton, Christie & Dye, 2002; Oyserman, Fryberg & Yoder, 2007).

Research indicates that ethnic identity and self-esteem are correlated and that a greater sense of belonging and pride in one's ethnic group can increase self-esteem (Phinney, 1992) and lead to a positive sense of self and higher self-confidence (Umaña-Taylor and Updegraff, 2007). A greater ethnic identity has been correlated with greater positive mood, lower anxiety, and less depressive symptoms (Kiang et al., 2006; Mossakowski, 2003; Phinney et al., 1997; Roberts et al., 1999; Umaña-Taylor & Updegraff, 2007). When individuals maintain negative attitudes or are unclear about their ethnic identity they tend to have lower self-esteem (Phinney et al., 1997). Individuals with a strong ethnic identity and high self-esteem have better coping strategies for dealing with adverse experiences, such as discrimination (Holcomb-McCoy, 2005; Mossakowski, 2003) or a pain experience. In addition, in a recent study, Corral and Landrine (2008) found that health behaviors that have a low prevalence among traditional minorities increase with acculturation with the dominant culture. Alternatively, it was indicated in this study that health behaviors with a high prevalence amongst traditional minorities decrease with acculturation (Corral & Landrine, 2008).

Americans from lower socio-economic statuses have been found to engage in fewer health promoting behaviors and to experience more health consequences (Bolman, Murphy & Gleeson, 2004). Research indicates that African Americans, Mexican Americans, and American Indians reported that they engage in fewer health-promoting behaviors, (U.S Department of Health and Human Services, 1996) and seemingly experience more disease and death rates than White middle class Americans (Bell, Quant, Acrury, McDonald, & Vitolins, 2000; King et al., 2000; Thompson et al., 2001).

Cultural affiliation has been found to have an important influence on the perception of and response to pain. However, research is diffuse in examining how cultural differences influence a pain experience. Bates, Edwards & Anderson (1993) found the role of ethnic identity and cultural experiences out of an array of biopsychosocial factors, most influential in the experience of chronic pain in 372 chronic pain patients. In this study, the best predictors of pain intensity were ethnic group affiliation and locus of control. It appears that variations in pain intensity may be affected by differences in attitudes, beliefs, emotional and psychological states associated with subset ethnic groups. While it is common knowledge that intense pain affects attitudes and emotions, it is also very likely that attitudes and emotions influence reported perceptions of pain intensity (Bates, Edwards & Anderson, 1993).

The study of the association between ethnic identity and opioid use in CNCP patients is limited in present research. Wong and Longshore (2008) assessed the impact of ethnic identity spirituality, and self-efficacy on methadone treatment outcomes for heroin use among Hispanic Americans. Researchers found that greater levels of ethnic identity were related to a greater number of drugs used at one-year follow-up. In addition, James, Kim and Armijo (2000) assessed the impact of ethnic identity on drug use among ethnic minority adolescents. James, Kim and Armijo (2000) found the ethnic minority sample reported higher levels of ethnic identity and that higher ethnic identity levels were associated with heavy drug use. Furthermore, in the same study researchers found that white adolescent group members scored lower on ethnic identity than members in the four ethnic minority groups.

Social Support and Chronic Pain

Terrence, Amick and Judith (1994) defined social support as the degree to which an individual's basic social needs are met through an interaction with others involving resources both tangible and intangible. According to Cohen and Wills (1985) social support is a multidimensional construct which includes structural and functional qualities. Structural social support refers to the existence and form of a social network while functional (also known as perceived social support) is concerned with how the network serves to provide multifarious kinds of support. Wills and Filer (2001) further explained that perceived social support is the subjective judgment that family and friends are able to provide quality assistance during life stressors or times of need. This assistance may include listening, expressing warmth and affection, offering advice or another way of looking at the problem, providing specific assistance such as looking after the children, or simply spending time with the stressed individual (Lakey & Cohen, 2000).

The dominant theoretical perspective in social support research draws from stress and coping theory (Lakey & Cohen, 2000). According to this theory (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984), stress occurs when people interpret situations negatively, do not employ adequate coping responses (such as problem solving or emotional regulation) and the experience of stress leads to health complications. Social support promotes health by buffering stress and protecting individuals from the adverse affects of stress (Cohen & Wills, 1985). This occurs through an adoption of adaptive appraisals and/or effective coping strategies. From this perspective, social support is most efficacious when appraisals and coping skills are enhanced and the particular type of social support matches the demands of the stressor (Cohen &

Hoberman, 1983; Cutrona & Russell, 1990). Moreover, when an individual's perception of support reflects his or her history of the receipt of effective support this perception directly reduces negative appraisals of stressors (Lakey & Cohen, 2000).

The Social Provisions Theory of Weiss (1974) has also made a significant contribution to the conceptualization of social support. According to Weiss's theory, there are six different social provisions that may be obtained from relationships. These provisions include guidance (advice or information), reliable alliance (assurance that others can be counted on in times of stress), reassurance of worth (recognition of one's competence), attachment (emotional closeness), social integration (a sense of belonging to a group of friends), and opportunity for nurturance (providing assistance to others; Rizwan & Syed, 2010; Weiss, 1974). Among the most common measures of social support are measures of perceived support, and the two most notable and widely used are the Interpersonal Support Evaluation List and the Social Provisions Scale. The Social Provisions Scale was developed from Social Provisions theory as created by Weiss (1974), and was the measure utilized in the current study. In general, these measures show consistent and strong relations to mental health, and are often related to many indices of physical health (Lakey & Cohen, 2000; Sarason, Sarason & Gurung, 2001; Uchino, 2004; Wills & Filer, 2001).

Social support is a psychological construct that has been associated with psychological health (Cohen & Wills, 1985; Kertesz, Larson, Horton, Winter, Saitz, & Samet, 2005), psychological well-being (Cohen, Underwood, & Gottlieb, 2000; Henderson & Brown, 1988), higher levels of psychopathology (Kilbourne, McCarthy, Post, Welsh, & Blow, 2007; Pierce, Frone, Russell, Cooper, & Mudar, 2000), depression

(Bayat, Erdem, & Kuzueu, 2008; Talaei, Ardani, & Saghebi, 2008), suicidal ideation (Kimbrough, Molock, & Walton, 1996), anxiety (Bayat, Erdem, & Kuzueu, 2008), and self-esteem (Eckenrode & Wethington, 1990; Gottlieb, 2009). Numerous researchers have found a negative relationship between social support and depression (Barrera, 2000; Berkman & Glass, 2000; Israel & Schurman, 1990) as well as between depression and perceived social support (Cutrona & Russell, 1987; Weinert & Tilden, 1990; Yang & Clum, 1995). Levels of severity of depression in both males and females have also been associated with social support (Rizwad & Syed, 2010; Zlotnick, Shea, Pilkonis, Elkin, & Ryan, 1996).

Interpersonal relationships that provide social support in terms of information, help, and expressions of caring, promote health by imparting feelings that one is being cared for, beliefs that one is esteemed, and a sense of belonging to a reciprocal network (Cutrona & Russell, 1990). Consistent with this view, cognitive constructs such as internal control beliefs, dysfunctional attitudes, and self-esteem are more highly correlated with perceived support than they are with the actual help people provide (Lakey & Cassady, 1990). Several theorists (Campbell, 1984; Cohen & Syme, 1985; Cohen & Wills, 1985) have suggested that social support is a precursor to self-esteem. McNicholas (2002) found a positive influence of social support on self-esteem, and an association between these two variables has been reported in many other studies (Hubbard, Muhlenkamp, & Brown, 1984; Mahon, Yarcheski, & Yarcheski, 1998; McCloskey, 2008; Rizwad & Syed, 2010).

Social support can be a double-edged sword for people with CNCP (Lopez-Martinez Esteve-Zarazaga, Ramirez-Maestre, 2008). Lopez-Martinez and colleagues

(2008) found that high levels of social support correlate with less pain and distress while solicitous attention from spouses regarding pain behavior may actually increase pain interference. CNCP patients who reported more satisfaction with their social support network also reported lower levels of depression and less pain. Patients with satisfactory levels of social support were more likely to choose active coping strategies for dealing with their pain, such as trying to distract themselves by doing something pleasant, rather than passive strategies like complaining about their pain to others. Active coping strategies were also linked to lower levels of depressed mood and better functioning, while patients who coped with their pain passively tended to be more depressed and to have more severe pain (Lopez-Martinez et al., 2008).

Recent conceptualizations of pain catastrophizing (a negative exaggerated focus on pain) have focused on the interpersonal (Sullivan et al., 2000, 2001) nature of this construct. Researchers suggest that individuals with CNCP may communicate distress and garner support from interpersonal relationships by verbalizing catastrophic thoughts or engaging in pain or catastrophizing behaviors (Sullivan et al., 2000, 2001; Thorn et al., 2003). Research supports a relationship between catastrophizing as assessed by the Pain Catastrophizing Scale (Sullivan et al., 1995) and solicitous responses from others (Giardino et al., 2003). Further study of the catastrophizing-support association may provide additional insight into the consistent relationship between others' responses and CNCP negative outcomes (e.g. psychological distress, disability; Cano, 2004; Cano et al., 2000, 2004; Flor et al., 1987; Kerns et al., 1990; Romano et al., 1995; Turk et al., 1992).

The study of the association between perceived social support and opioid use in CNCP patients is limited in present research. Dunbar and Katz (1996) examined the relationship between social support and aberrant drug-related behaviors in CNCP patients with a history of substance abuse receiving opioid therapy. Researchers found that patients in the group that was compliant with drug treatment versus the group that was not, had good social support, were in solid drug-free recovery, and had more remote polysubstance abuse histories. The group of patients displaying aberrant drug-related behavior were not participatory, had poor social support, and were not in 12-step programs (Dunbar & Katz, 1996). In a more recent study, Warren, Stein & Grella (2007) assessed the role of social support and self-efficacy in treatment outcomes among patients with co-occurring substance abuse and psychiatric disorders in residential drug treatment programs. It was found that greater reports of social support at baseline predicted better mental health and less heroin and cocaine use.

Self-Efficacy of Chronic Pain

Self-efficacy has been defined as the belief in one's capacity to execute courses of action required to produce certain goals (Bandura, 1997). Bandura (1977) also proposed that expectations of efficacy determine the amount of effort individuals expend and how long they will persist in the face of obstacles and aversive experiences. Furthermore, Bandura (1989) built beyond this idea contending that self-efficacy beliefs relate to specific behaviors and argued that people could hold efficacy beliefs about their ability to cope in the face of adversity. In this context Bandura (1989) referred to strong self-efficacy beliefs as a "resilient self belief system" whereby "people who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and,

hence, are not perturbed by them’’ (p. 419). Ozer & Bandura (1990) demonstrated links between coping efficacy beliefs, avoidance behaviors and anxiety (Nicholas, 2007).

Self-efficacy has been an important psychological construct underlying research in arthritis and other sources of chronic pain (Allegrante & Marks, 2003; Lorig & Holman, 1989). The study of pain self-efficacy expectations (or self-efficacy beliefs) have been used to explain a plethora of behaviors and aspects of the experience of pain (Altmaier et al., 1993; Anderson et al., 1995; Arnstein et al., 1999; Asghari and Nicholas, 2001; Jensen et al., 1991; Keefe et al., 2004; Lackner and Carosella, 1993; Pincus and Morley, 2002; Rudy et al., 2003; Turk, 2002). Confidence in the ability to perform specified activities for CNCP patients has been correlated with the subsequent performance of those activities (Council et al., 1988; Nicholas, 2007).

The awareness of the significance of self-efficacy beliefs has contributed to the development of self-management interventions for chronic pain that focus on teaching pain coping skills, educating patients about pain, and providing social support (Foster, Taylor, Eldridge, et al., 2007; Nicholas, Molloy, Tonkin, & Beeston, 2003). Low pain self-efficacy is characterized by a feeling that pain is uncontrollable and unmanageable, given the physical demands of daily life (Linton & Shaw, 2011). Linton and Shaw (2011) found that greater reported levels of anxiety and depression in CNCP patients were correlated with fewer patient expectations about being able to control their symptoms of pain and physical function. In addition, patients with fewer expectations about controlling their symptoms and physical function expressed greater intensity and severity of pain, greater anxiety of pain and greater catastrophizing (Linton & Shaw, 2011). In the case of self-efficacy expectations for coping with symptoms, Linton and

Shaw (2011) observed that depression and pain intensity were identified as significant predictors for the self-efficacy beliefs for coping with pain symptoms, revealing a close relationship between symptoms of depression and the perception of self-efficacy of pain.

Arnstein et al. (1999) found that both pain intensity and self-efficacy contribute to the development of incapacity and depression in CNCP patients. This suggests that the lack of self-efficacy expectations for pain management, as well as being able to function despite persistent pain, is a significant predictor of the degree of incapacity and/or disability, as well as the level of depression experienced in chronic pain patients. Martín-Aragón et al. (2001) observed that self-efficacy expectations were negatively and significantly correlated with pain, anxiety and depression in Spanish speaking CNCP patients.

The study of the association between self-efficacy and opioid use in CNCP patients is diffuse in present research. Wong and Longshore (2008) assessed the impact of ethnic identity spirituality, and self-efficacy on methadone treatment outcomes for heroin use among Hispanic Americans. Researchers found that higher levels of self-efficacy reported at intake were related to increased odds of abstinence of heroin use and a lower number of drugs used at one-year follow-up. In addition, Warren, Stein and Grella (2007) assessed the role of social support and self-efficacy in treatment outcomes among patients with co-occurring substance abuse and psychiatric disorders in residential drug treatment programs. These researchers found that greater reports of self-efficacy predicted less alcohol and cocaine use.

RESEARCH HYPOTHESES

Hypotheses for research in Partnership with Salud Family Health Care Clinics

- 1) Group A (CNCP patients prescribed opioids) and Group B (CNCP patients not prescribed opioids) will be statistically significantly differentiated when gender, age, ethnicity, level of education, perceived social support, self-efficacy of pain, depression, and level of ethnic identity are used as predictors.
- 2) Gender, ethnicity and the interaction between gender and ethnicity will be significant predictors of aberrant drug-related behaviors (positive screening on the COMM in Group A) or high risk of opioid misuse (high results on the SOAPP®-R in Group B).
- 3) After controlling for contributions of demographic variables (age, gender, ethnicity and level of education), perceived social support, self-efficacy of pain, depression, and level of ethnic identity will be significant predictors of aberrant drug-related behaviors (positive screening on the COMM in Group A) or high risk of opioid misuse (high results on the SOAPP®-R in Group B).

Qualitative research questions were employed to gain further comprehension of what high risk of opioid misuse and drug-related aberrant behaviors in CNCP patients encompasses. Chronic pain patients' experiences of chronic pain, expectations of pain management, expectations of the use of opioids, and coping skills for chronic pain were explored. Grounded theory methodology was used as a basis of analyzing qualitative data collected.

The next chapter, the third chapter of this dissertation, will describe the methods utilized. This chapter will cover the population, instruments, methodologies, and

procedures. In addition, the analyses processes, ethical considerations, and possible limitations of this study will be explained.

CHAPTER THREE: METHOD

Research Design

Mixed methods research has increased in popularity in the social sciences (Creswell, 2002, 2003; Greene, Caracelli, & Graham, 1989; Tashakkori & Teddlie, 1998, 2003). Mixed methods research has been defined as “the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research” (Creswell, Plano Clark, Gutmann, & Hanson, 2003, p. 212). Researchers infer that when both quantitative and qualitative data are included in a study, researchers may enrich their results in ways that one form of data does not allow (Brewer & Hunter, 1989; Hanson, Cresswell, Plano Clark, Petska & Cresswell, 2005; Tashakkori & Teddlie, 1998).

Mixed methods researchers have expanded the reasons for conducting mixed methods designs in counseling psychology research. Mixed methods designs have been found beneficial in identifying variables/constructs that may be evaluated through the use of existing instruments or the development of new ones. Statistical data obtained from a sample of a population has also been used to identify individuals who may expand on those results through qualitative data. Mixed methods have been found to provide a better understanding of a research problem by combining numeric results with specific details from qualitative data. Furthermore, mixed methods designs have been used to

convey the needs of individuals or groups of individuals who are marginalized or underrepresented (Mertens, 2003; Newman & Benz, 1998).

Pragmatism has been noted as one of the best paradigms for mixed methods research (Tashakkori & Teddlie, 2003) and draws on diverse approaches valuing both objective and subjective knowledge (Cherryholmes, 1992). Many prominent mixed methods researchers and scholars believe that pragmatism is the best philosophical basis of mixed methods research (Tashakkori & Teddlie, 2003). Specifically from this lens, quantitative and qualitative methods can be combined to use results from one method to elaborate on results from the other method in a complementary fashion (Beck, 2005; Goodyear et al., 2005; Hanson et al., 2005). Tashakkori and Teddlie (2003) also argued, however, that the research questions should be of primary importance, perhaps even more important than either the method or the theoretical lens that underlies methods used.

It has been suggested for counseling psychology researchers utilizing a mixed methods approach, to analyze the quantitative and qualitative data separately and then compare and contrast the two sets of results in the discussion. The interview data can be used to corroborate, refute, or augment findings from the survey data. Data analysis occurs by analyzing the data separately, transforming them, and by connecting the analyses in some way (Caracelli & Green, 1993; Hanson et al., 2005; Onwuegbuzie & Teddlie, 2003; Tashakkori & Teddlie, 1998). A mixed methods design has been selected for the present study.

Participants

Patients 18 years of age and older experiencing a chronic non-cancer pain (CNCP) experience were eligible to participate in this study. A convenience sampling

method was employed. Patients prescribed opioid medications for CNCP and those who were in consideration for opioid medications or not prescribed opioids for CNCP, were invited to participate in this study. Participants were patients being treated at a Salud Family Health Care Center. Data from 102 chronic pain patients were collected and included in this study.

10 participants from the total sample were chosen for the qualitative leg of this research. The number of participants included in the qualitative portion of this study was dependent on when the saturation of data occurred. "In trying to reach saturation she (researcher) maximizes differences in her groups in order to maximize the varieties of data bearing on the category, and thereby develops as many diverse properties of the category as possible" (Glasser & Strauss, pg. 62). Participants were interviewed for as long as new ideas or insights continued to emerge. In addition, participants were described fully under the guiding premise of thick description. Thick description, "...does more than record what a person is doing. It goes beyond mere fact and surface appearances. It presents detail, context, emotion, and the webs of social relationships that join persons to one another..." (Denzin, 1989, p. 83). Thick description was utilized in the qualitative portion of this study while maintaining anonymity of participants (Ponterotto, 2006).

Theoretical sampling is a process of grounded theory by which continued sampling occurs concurrently with data analysis. This is the technique that was utilized in this study. The introduction of new data from participants was used to verify categories, and to gain greater clarity and comprehensiveness. Initially a more homogeneous sample was used during the coding process, and after new categories

emerged, a more diverse heterogeneous sample was used to become aware of what additional categories and properties still hold true. Criterion-based sampling was ignited in order to develop a sample that is diverse across gender, age and ethnicity (Glaser & Strauss, 1967)

Participant Demographics

This study sought to explore the experiences of a diverse group of chronic pain patients. Demographic information related to the sample will be presented in Chapter Four. Ten chronic pain patients participated in both the qualitative and quantitative aspects of this research. Information about this specific group will also be presented in Chapter Four.

The Research Team

Lead Researcher

The lead researcher is a doctoral candidate at the University of Denver. As the primary investigator, she was solely responsible for conducting all of the interviews with patients. This measure was put in place to allow for consistency, and also to provide the lead researcher with significant in-depth exposure to the data. Grounded theory methodology allows the researcher to become “lost” in the data (Glaser & Strauss, 1967). The lead researcher became engrossed in the data in an effort to generate a grounded theory.

Secondary Researchers

Three secondary researchers along with the lead researcher comprised the research team. Dr. Cynthia McRae, the dissertation mentor, provided consistent support, encouragement, and knowledge from the study’s inception, and throughout the data

collection, analysis, and formulation of the grounded theory process. Paul Grimsley, MS.Ed and Lexi Heringer were secondary researchers from the beginning of data collection. These secondary researchers and the lead researcher met regularly, and communicated electronically in between meetings, and throughout the study. The secondary researchers were extremely dedicated to the project, and committed considerable time, energy, and effort to the research from the start of the research until its completion. They aided in transcribing and analyzing data and in contributing to the generation of theory.

Instruments

Current Opioid Misuse Measure (COMM)

Permission to utilize this measure was granted by Dr. Kevin L. Zacharoff, the Vice President of Medical Affairs for Inflexxion Inc., on September 14, 2011. The primary researcher signed a licensing agreement to gain approval for its use (see Appendix K). The COMM originated from an original 40-item questionnaire developed out of input from a panel of experts and concept mapping analyses. 17 of the items from the original COMM were found to show good reliability and adequate validity in identifying which chronic pain patients currently on long-term opioid therapy would show evidence of medication misuse or abuse after an extensive assessment process. The COMM consists of these 17 items and is a self-report questionnaire which assesses the risk for aberrant medication-related behaviors among chronic pain patients. It was developed to complement predictive screeners of opioid misuse and to improve a clinician's ability to periodically assess a patient's risk for opioid misuse. Unlike other measures that were designed to identify risk potential for substance abuse, like the

SOAPP®-R, the COMM is designed to address ongoing medication misuse by asking patients to describe how they are currently using their opioid medication. Each question asks the relative frequency of a thought or behavior over the past 30 days on a 4-point Likert scale ranging from 0 = “Never” to 4 = “Very Often” and total scores range from 0 to 68. Two sample items of this measure are: “In the past 30 days, how often have you had to take more of your medication than prescribed?” and “In the past 30 days, how often have you been worried about how you’re handling your medications?” One-week test-retest reliability for the total COMM score was excellent (intraclass correlation coefficient = 0.86). The coefficient alpha found for the 17-item COMM was 0.86 which suggested excellent internal reliability (Butler et al., 2007).

The COMM assesses current behaviors and cognition. While it may be common for CNCP patients taking opioids for pain who misuse their medication to be prone to be less than truthful when completing a current medication misuse questionnaire, many of the items on the COMM are subtly related to misuse of medication and are not so transparent. Researchers found that patients are commonly willing to admit to certain items if they have an option to rate them as 1 = “Seldom” on a 0 to 4 scale (Butler et al., 2004). By providing this option, the chance that patients will falsify all answered responses decreases. The COMM low cut-off score of nine was selected to over-identify misuse. Any endorsement of COMM items results in greater likelihood of identifying current medication misuse. It is just as important to identify patients who have a possibility of misusing their medication as those actually abusing. This scale may result in false positives indicating patients identified as misusing their medication when they were not. Similar to past measures this may help to predict substance abuse. Moreover,

the COMM may also be valuable as a scale to identify those who are not having problems with their use of opioids when patients receive very low scores. However, since there are no objective means by which to identify substance abusers, errors can be made.

Clinicians are encouraged to practice caution when interpreting the results of the COMM and other similar measures like the SOAPP®-R and to consider extenuating circumstances. As with all screening measures, the COMM is a single indicator of possible medication misuse (Butler et al., 2007). Additional information should be used in making a diagnosis of a substance abuse disorder (Savage, 2002).

Screening and Opioid Assessment for Patients with Pain-Revised (SOAPP®-R)

Permission to utilize this measure was granted by Dr. Kevin L. Zacharoff, the Vice President of Medical Affairs for Inflexxion Inc., on September 14, 2011. The primary researcher signed a licensing agreement to gain approval for its use (see Appendix K). The SOAPP®-R is a 24-item self-report questionnaire with a five-point Likert scale ranging from 0 = “Never” to 4 = “Very often” and total scores range from 0 to 96. Two sample items of this measure are: “How often have you had to borrow pain medications from your family or friends?” and “How often have you felt consumed by the need to get pain medication?” A participant receiving a score of 18 or higher indicates a positive screening (Butler et al., 2008).

The SOAPP®-R was developed to complement current risk assessment practices and improve a clinician's ability to assess a patient's risk for opioid abuse. The assessment takes participants less than ten minutes to complete. The measure has been validated with 500 chronic pain patients. The estimate of reliability was found to be 0.74 on internal consistency and 0.71 on test-retest reliability (Butler et al., 2008). The

measure addresses some of the limitations of the original SOAPP V.1 by containing more subtle and socially acceptable items that were conceptually and empirically examined. The SOAPP®-R was found to have good psychometric properties in a cross-validation test with an additional sample of 284 CNCP patients on long-term opioid therapy. This cross-validation study which also included the Aberrant Drug Related Index (ABDI) resulted with a reliability of 0.86 on internal consistency and 0.94 on test-retest reliability (Butler et al., 2008).

CNCP patients scoring above 22 on the SOAPP®-R have been identified as individuals most at risk for opioid misuse. Some examples of these behaviors or beliefs include a current or recent history of alcohol or drug abuse, being discharged from another physician's care because of his/her behavior, and regular noncompliance with physicians' orders. In addition, these patients may have misused other prescription medications in the past. The measure can predict aberrant medication-related behaviors six months after initial testing (Butler et al., 2008).

Pain Self-Efficacy Questionnaire (PSE-Q)

Approval to use this measure was granted by the primary author, Dr. Michael Nicholas, on August 16th of 2011 in an email. The PSE-Q is a 10-item self-report measure which utilizes a seven-point Likert scale ranging from 0 = "Not at all confident" to 6= "Completely confident" with total scores ranging from 0 to 60. The PSE-Q is a measure designed for chronic pain patients to assess their expectations and level of confidence in performing a particular behavior or task despite their experience of pain. This is one of the only measures of its kind that assesses self-efficacy beliefs for people experiencing chronic pain while "in the face of their obstacles" as Bandura (1977)

initially proposed. Bandura (1977) contended that “efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences”(p. 194). Most other published measures of self-efficacy beliefs used in pain samples do not explicitly ask the patient to take their pain into account when describing their confidence in performing specific tasks (e.g., Jensen, Anderson et al., 1995; Lorig et al., 1989; Nicholas, 2007; Rudy et al., 2003). Some examples of these questions include: “I can do most of the household chores (e.g., tidying-up, washing dishes), despite the pain” and “I can gradually increase my activity level, despite the pain” (Nicholas, 2007).

The PSE-Q has been utilized in a plethora of clinical settings and in multiple countries (e.g., Adams and Williams, 2003; Asghari and Nicholas, 2001; Ayer and Tyson, 2001; Cohen et al., 2000; Coughlan et al., 1995; Dehghani et al., 2004; Estlander et al., 1994; Frost et al., 1993; Gibson and Strong, 1996; Nicholas et al., 1992; Ralphs et al., 1994; Strong et al., 2002; Watson et al., 1997; Williams et al., 1993, 1996, 1999).

Some of the items were derived from existing measures (namely the Pain Beliefs Questionnaire: Gottlieb, 1984) and modified to fit the variant revised scale while further additional items were created from the author’s experience in working with chronic pain patients (Nicholas, 2007).

Validity of the PSE-Q is reflected in high correlations with measures of pain-related disability. The measure of internal consistency of items, Cronbach’s alpha coefficient, was calculated as 0.92. This value is very high and indicates the instrument has excellent internal consistency (Nunnally & Bernstein, 1984). Test-retest reliability was assessed on a different sample of 145 chronic pain patients treated at the Royal North

Shore Hospital in Sydney from 1995-1996 (Asghari & Nicholas, 2001). For comparison purposes, this sample had a test–retest period from initial assessment to three months later. During this time, all patients received some form of ongoing treatment (mainly medication), but reported no changes in their average rates of disability or pain. The test– retest correlation from baseline to three months was 0.73. Interestingly, similar findings were reported by Williams et al. (1996) with a wait-list control group of 31 chronic pain patients who were tested 12-weeks apart. Williams et al. (1996) found that patients continued with whatever treatments their doctors had prescribed. Results showed the mean PSE-Q baseline score was 26.3 and after 12 weeks the mean score was 26.7. Thus, no significant change was found and researchers indicated that no change in pain or disability was found either. These findings suggest that the PSE-Q has demonstrated a high degree of reliability, both internally and across a period of at least three months under conditions of no change in either pain or disability (Nicholas, 2007).

In some studies, results of the PSE-Q were also found to indicate the likelihood of behavioral maintenance or even likelihood of returning to work given the presence of pain. Scores of around 40 post-treatment were found in injured workers who returned to work (Adams & Williams, 2003; Cohen et al., 2000) and in patients who generally maintained their treatment gains at 6 and 12-month follow ups (Williams et al., 1993, 1996). Findings obtained with the PSE-Q across a number of studies with different pain populations provide support for the idea originally proposed by Bandura (1989) that it is useful to conceptualize self-efficacy as a resilient self-belief system operating in the face of obstacles. By specifying the nature of the obstacles to be faced, albeit pain, the PSE-Q

provides more clinically useful information than asking individuals to rate their level of confidence in performing an activity in isolation (Nicholas, 2007).

Multi Ethnic Identity Measure-Revised (MEIM-R)

The author of this measure (Phinney, 1992) allows researchers to utilize this instrument without prior permission or approval. The MEIM was first published almost 15 years ago and since that time it has been widely used and reported in the literature. The measure is based on the developmental theories of Erikson (1968) and Marcia (1980), as well as the social identity theory of Tajfel (1981). Phinney (1992) created the MEIM based on the belief that ethnic identity is a general phenomenon with elements that are common across all ethnic group members. She indicated that the scale would allow for the assessment and comparison of ethnic identity across ethnic groups (Phinney, 1992). According to Phinney, the label an individual uses to self-identify should be distinguished from parents' ethnic heritage, which forms the basis for one's objective group membership. Gathering this information helps to avoid confusion between ethnicity and ethnic identity. The MEIM is the dominant measure of ethnic identity utilized in multicultural research (Cokely, 2007) and the revised MEIM (Phinney & Ong, 2007) has been described as a measure to be used for best practices (Ponterotto & Park-Taylor, 2007).

The MEIM-R maintains stronger reliability and higher alpha coefficients than multidimensional measures of ethnic identity in the literature. The MEIM-R demonstrated moderately high internal consistency with a Cronbach's alpha of 0.87 and confirmatory factor analyses estimates resulted from 0.71 to 0.90. The MEIM-R is a unified construct with three interrelated components of ethnic identity that load onto one

factor: affirmation, achievement, and behaviors (Cokely, 2007; Phinney, 1992). The measure is a 14-item self-report questionnaire that assesses three components of ethnic identity: affirmation and belonging (five items), ethnic identity achievement (seven items) and ethnic behaviors (two items). Items are rated on a 4-point Likert scale ranging from 1 = “Strongly disagree” to 4 = “Strongly agree”. High scores indicate strong ethnic identity (Phinney, 1992). Affirmation refers to a sense of belonging and positive attitudes toward one’s ethnic group. Achievement refers to the exploration and resolution of ethnic identity issues. Behaviors refer to engaging in behaviors and practices that are specific to or representative of one’s ethnic group (Phinney, 1992).

The MEIM-R was developed on samples of high school and college students. The high school sample consisted of 134 Asian Americans, 131 African Americans, 89 Latinos, 41 students with mixed ethnic backgrounds, 12 European Americans, and 10 individuals identified as other. The college sample consisted of 58 Latinos, 35 Asian Americans, 23 European Americans, 11 African Americans, 8 students with mixed ethnic backgrounds, and 1 American Indian. Ethnic groups were operationally defined on the basis of students’ self-report. Some examples of sample items include, “I feel a strong attachment toward my ethnic group”, “I am not very clear about the role of my ethnicity in my life”, “I have a clear sense of my ethnic background and what it means to me”. Higher scores on the MEIM-R reflect a greater emphasis placed on ethnicity as an important part of participants’ identities (Phinney, 1992).

Social Provisions Scale

Permission to use this instrument was granted by the primary author of this measure, Dr. Carolyn Cutrona, on August 22, 2011 in an email message. The most

commonly used measures of social support are measures of perceived support. In general, these measures show consistent and strong relations to mental health, and are often related to many indices of physical health (Sarason, Sarason & Gurung, 2001; Uchino, 2004; Wills & Filer, 2001). Among the most common measures is the Social Provisions Scale (Lahey & Cohen, 2000). The Social Provisions Scale assesses participants' perceived general social support from participants' social network (Cutrona, 1989; Cutrona and Russell, 1987). The measure is a 24-item, 4-point Likert scale which evaluates six provisions of social relationships described by Weiss (1974). Scores range from with a 1 = "Strongly disagree" to 4 = "Strongly agree" with total scores ranging from 0 to 96. The six provisions include guidance (advice or information), reliable alliance (belief that others can be counted on in times of stress), reassurance of worth (recognition of one's competence), attachment (emotional closeness), social integration (a sense of belonging to a group of friends), and opportunity for nurturance (rendering assistance to others). Scores can be determined for each of the six provisions as well as for a global social support score. Research supports the reliability and validity of the Social Provisions Scale, as well as the factor structure of the measure (Cutrona & Russell, 1987; Rizwa & Syed, 2010).

The Social Provisions Scale yields reliable measurements of each social provision. Analyses were conducted on a sample of 1792 respondents, which included 1183 students from introductory psychology courses (Cutrona & Russell, 1987), 303 public school teachers (Russell et al., 1987), and 306 nurses from a military hospital (Constable & Russell, 1986). The reliabilities of the individual social provision subscales have coefficient alphas ranging from 0.65 to 0.76. Reliability of the total Social

Provisions score was 0.91 based on the formula for the reliability of a linear combination of scores given by Nunnally (1978, p. 248). In addition, a confirmatory factor analysis was conducted on responses to the instrument to evaluate factor structure (Cutrona & Russell, 1987), and all of the item loadings on the respective factors were statistically significant and sizeable in magnitude (ranging from .39 to .79). Each item adequately represents the construct that it was designed to assess. Some examples of sample items include: “There are people I can depend on to help me if I really need help,” “I have close relationships that provide me with a sense of emotional security and well-being,” and “There are people I can count on in an emergency.”

Patient Health Questionnaire (PHQ-9)

The Patient Health Questionnaire (PHQ) is a three page self-report questionnaire commonly used in primary care. Typically, the clinician scans the completed questionnaire, verifies positive responses, and applies diagnostic algorithms that are abbreviated at the bottom of each page. The PHQ assesses criteria for eight diagnoses, divided into threshold and subthreshold disorders that correspond to specific DSM-IV diagnoses. The threshold disorders are Major Depressive Disorder, Panic Disorder, Other Anxiety Disorder, and Bulimia Nervosa, and subthreshold disorders whose criteria encompass fewer symptoms than are required for any specific DSM-IV diagnoses are Other Depressive Disorder, probable Alcohol Abuse/Dependence, Somatoform, and Binge Eating Disorder (Kroenke, Spitzer & Williams, 2001).

The PHQ-9 is a nine item depression module taken from the full PHQ. The PHQ-9 is already the dominant depression screening measure utilized at Salud Family Health Care Clinics, which influenced the decision to use this measure versus other

published measures to assess for depression. In the PHQ-9 Major Depression is diagnosed if five or more of the nine depressive symptom criteria have been present at least “more than half the days” in the past two weeks, and if one of the symptoms is depressed mood or anhedonia. Other depression is diagnosed if two, three or four depressive symptoms have been present at least “more than half the days” in the past two weeks, and one of the symptoms is depressed mood or anhedonia. One of the nine symptom criteria (“thoughts that you would be better off dead or of hurting yourself in some way”) counts if present at all, regardless of duration. As a severity measure, the PHQ-9 score can range from 0 to 27, since each of the nine items can be scored from 0 = “Not at all” to 3 = “Nearly every day”. An item was also added to the end of the diagnostic portion of the PHQ-9 asking patients who checked off any problems on the questionnaire, “How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?” (Kroenke, Spitzer & Williams, 2001).

The internal reliability of the PHQ-9 was excellent with a Cronbach's alpha of 0.89. Test-retest reliability of the PHQ-9 was also excellent. Correlation between the PHQ-9 completed by the patient in the clinic and then administered telephonically by Mental health physicians within 48 hours, in a primary care study, was 0.84. The vast majority of patients (93%) with no depressive disorder had a PHQ-9 score less than 10, while most patients (88%) with major depression had scores of 10 or greater. Scores less than five almost always signified the absence of a depressive disorder; scores of five to nine predominantly represented patients with either no depression or subthreshold (i.e.,

other) depression; scores of 10 to 14 represented a spectrum of patients; and scores of 15 or greater usually indicated Major Depression (Kroenke, Spitzer & Williams, 2001).

Qualitative Methodology

Since Glaser and Strauss (1967) created grounded theory while working on the study “Awareness of Dying,” the sociologically based theory has been adapted by researchers in many fields and has been described as the most influential qualitative research paradigm of the social sciences (Ponterotto, 2005). Grounded theory’s four major features include: 1) theory grounded in data 2) constant comparative method 3) memo writing, and 4) theoretical sampling (Glaser & Strauss, 1967). These methods were utilized throughout the study.

Under the qualitative constructivist-interpretivist paradigm of grounded theory, in-depth, one-on-one interviews were conducted with an equal number of chronic pain patients from “the already prescribed opioid medication” group as well as the “being considered for opioid therapy” group. In grounded theory literature it is recommended that researchers be flexible in their design and plans (Haverkamp & Young, 2007). To this end, an open, unbiased and flexible approach to interviews was taken. Data derived from the interviews were interpreted using the constant comparative method. This method is a comparative coding process including three types of coding: open, axial and selective coding. The basic units for creating grounded theory derive not from “raw data,” but from analyzing the indicators of phenomena. These phenomena are given conceptual labels or concepts that are grouped into categories. This process is done by a trained researcher who ascribes context and meaning to data in a relevant way for those it will impact (Fassinger, 2005).

Elliott, Fischer, and Rennie (1999) discussed the importance of owning one's perspective in qualitative research. Authors advise that researchers should disclose their theoretical orientation and own personal relationship to the topic and study. Because the analysis of the data requires conceptualization of categories and themes, it is important to be aware of one's own personal assumptions and possible biases. Creswell (1998) discussed the importance of researchers' bracketing their expectations prior to their qualitative inquiry. In keeping with grounded theory tenets and in an effort to bracket my own experiences and perspectives, I will provide my relevant background below. I am a counseling psychology doctoral student at the University of Denver. I operate from a psychodynamic orientation. I am a white, single 32 year-old American female. I have a MSED in Counseling Psychology and my interests are in health psychology/primary care, chronic health conditions, and trauma. I am connected to the topic of the risk of aberrant drug-related behavior in CNCP patients from my exposure working with chronic pain veterans receiving treatment in the chronic pain clinic and the opioid pain care clinic at the Denver VAMC during my practicum placement in 2010. My interest grew as I realized that controversy remained on how to best decipher those chronic pain patients that would most likely benefit from opioid medication from those most likely to not. I recognized how challenging this process of assessing and determining the best recommendations for chronic pain patients could be while concurrently maintaining concerns of not wanting to cause further pain or possible malpractice by putting some patients at risk for addiction. I realized how many questions still remained in the medical community in regards to differentiating factors between those patients in the low risk

categories versus patients in the high risk categories of opioid misuse and aberrant drug-related behaviors.

Biases that I withheld going into the study were suspecting that chronic pain participants without social support and with severe depression may be more likely to be at risk for opioid misuse. In addition, the secondary researchers were asked to bracket their training, prior experiences and biases prior to data collection. Both researchers reported that due to their limited experience with the chronic pain patient population, they felt they were unaware of any potential biases or prior notions that may originate from data collection and coding. While both researchers had some addictions training and experience, both were unfamiliar with opioid addiction and reportedly were entering data coding and analyses without any knowledge of biases. Paul Grimsely is a 29 year-old, single, mixed Caucasian/Japanese) male. He is a Certified Addictions Counselor Level II with a BA in Psychology and an MA in Counseling Psychology. His areas of interest are substance abuse treatment, group therapy, and rehabilitation psychology. He has 6 years working in youth corrections, 4 years experience providing substance abuse counseling, and had a 9 month internship w/ severe and persistent mental illness. Lexi Heringer is a 24 year-old, single, Caucasian female. She is certified in ASIST (Applied Suicide Intervention Skills Training) has a BA in psychology and is working towards a MA in Clinical Mental Health Counseling. Her areas of interest include computer-mediated communication and personality, adolescent trauma treatment, and addictions treatment. She has 1 year of crisis and suicide hotline counseling experience, 6 months experience with a counseling practicum, and just starting a 9 month internship with adolescent trauma survivors.

Procedure

Patients were screened by the primary investigator to corroborate that inclusion criteria were met for participants prior to data collection. The primary researcher was granted access to Salud Family Health Care Center's database to conduct screening prior to data collection. The primary researcher conducted screens electronically the morning of data collection to screen for patient inclusion criteria, which included: 18 years of age and older and a current diagnosis of a chronic non-cancer pain condition. This allowed the primary researcher to depict patients eligible for inclusion of this study. CNCP patients at one large, diverse metropolitan Salud Family Health Care Clinic were approached by the primary researcher while they waited to be seen by physicians for their scheduled appointments in the lobby area. The primary researcher described the purpose of this study to determine if participants would be interested in volunteering. Once patients agreed to participate, they were provided with an informed consent form to read and sign (see Appendix A). The participants were then provided with a packet which included: one demographic questionnaire (Appendix C) four quantitative self-report measures the PHQ-9, PSE-Q, MEIM-R, Social Provisions Scale, (see Appendix D, E, F, G) and either the COMM self-report instrument (see Appendix H) or the SOAPP®-R self-report measure (see Appendix I). Patients already taking opioid medications were provided with the COMM and patients being considered for opioid therapy but not currently prescribed these medications completed the SOAPP-®R. All packets of measures were available in English and Spanish. Participants who spoke English as a second language and preferred to read in Spanish were provided with measures written in

Spanish. The COMM, SOAPP®-R, PHQ-9 and MEIM-R were readily available to this researcher in both English and Spanish. The Informed Consent Forms, Demographic Questionnaire, Social Provisions Scale and PSE-Q were translated and culturally adapted based on the principles of good research and processes indicated by the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) in a recent study (Wild et al., 2005). The process indicated by Wild and Colleagues (2005) were as follows: preparation (initial work carried out before the translation work begins), forward translation (translation of the original language version of the instrument into the targeted language), reconciliation (comparing and integrating more than one forward translation into a single forward translation), back translation (translation of the new language version back into the original language), back translation review (comparison of the back-translated versions of the instrument with the original to highlight and investigate discrepancies), cognitive debriefing (testing the instrument on a small group of relevant patients or lay people in test interpretation), review of cognitive debriefing results and finalization (comparison of the patients' or lay persons' interpretation of the translation with the original version to highlight and amend discrepancies), and proofreading (final review of the translation to highlight and correct any typographic, grammatical or other errors; Wild et al., 2005).

Upon completing the packet of measures, participants were asked to participate in the second, qualitative portion of this study. These participants were chosen based on scores relatively high or low on both the COMM and SOAPP®-R. The purpose of this portion of the study was described and patients were offered a twenty dollar card to Target for their participation. The patients who agreed to volunteer were asked to stay

after their scheduled physician appointment for an additional thirty to forty-five minutes to participate in an interview.

The second data collection process involved in-depth, one-on-one, face-to-face interviews. Participants were provided with a new informed consent form to read and sign at the start of the interview (see Appendix B). Interviews were audio-taped and then transcribed. The qualitative interviews conducted with patients who speak English fluently were conducted by the primary researcher. The in-depth semi-structured interview protocol was developed for this study (see Appendix B). However, interview questions may be altered as subcategories and themes emerge. The interview protocol was assessed periodically as theories and categories developed and emerged to make necessary adjustments. In line with a grounded theory approach, participants had the opportunity to review written transcripts and provide clarification during a follow-up telephone interview, if deemed beneficial. Participants were informed that they may be contacted if further clarification would be necessary. Attention was given to the major tenets of grounded theory, including theory being derived from data and data analysis using a method of constant comparison (Strauss & Corbin, 1990). The semi-structured interview protocol included specific interview questions related to chronic pain management, self-efficacy of pain, and expectations of opioid therapy and treatment for chronic pain (see Appendix B). For example, two questions included in the initial interview protocol were: What caused your experience of chronic pain? In what ways do you cope with your experience of chronic pain?

Self-reflective memos and field notes were used and aggregated to record insight and facilitate emerging theory. Interviews were coded by the primary researcher and

audited by two graduate level researchers who were trained in grounded theory. Coding from the initial three to four interviews produced the core phenomena (Creswell, Hanson, Clark Plano, & Morales, 2007). Subsequent interviews were coded and then compared to the initial themes. From this collaboration new themes were formulated until saturation occurred. This signified the end of the qualitative data collection.

Quantitative Data Analysis

Before the statistical analysis of the quantitative survey results, the screening of data was conducted. Data screening helps identify potential multicollinearity in the data, because multivariate tests are sensitive to extremely high correlations among predictor variables (Kline, 1998; Tabachnick & Fidell, 2000). Outliers were also excluded from the analysis. Data screening will include the descriptive statistics for all the variables, information about the missing data, linearity and homoscedasticity, normality, multivariate outliers, multicollinearity and singularity. In cases when data does not meet the underlying assumptions, the transformation procedures of variables were performed to either reduce skewness, reduce the number of outliers, and improve normality, linearity, and/or homoscedasticity of residuals. Descriptive statistics for the survey items were summarized in the text and reported. Frequencies analyses were conducted to identify valid percentages of responses to all the questions in the surveys. Because the purpose of hypothesis number one is to correctly predict the group membership (either group A or group B) from a set of eight predictors (gender, age, ethnicity, level of education, perceived social support, self-efficacy of pain, depression, and level of ethnic identity) a predictive logistic regression was utilized. The primary goal of logistic regression is to find the dimension or dimensions along which groups differ, as well as to

find classification functions to predict group membership (Tabachnick & Fidell, 2000). The specific underlying assumptions of logistic regression are multivariate normality, linearity of logit and discrete outcome variables. Discrete outcome variables can be converted from continuous outcome variables. These assumptions were tested and met before statistical analyses were executed. All statistical analyses of quantitative results were conducted with the help of Predictive Analytics Software (PASW) formerly known as Statistical Package for the Social Sciences (SPSS).

To address hypothesis question number two, a two-way Analysis of Variance (ANOVA) was employed to compare the statistically significant differences of group means between three independent variables (sex, ethnicity and the interaction between sex and ethnicity) and one dependent variable, either high risk of opioid misuse (high results on the SOAPP®-R in Group B) or aberrant drug related behaviors (positive screening on the COMM in Group A). Differences in results were assessed in ratio formats. The underlying assumptions of ANOVA include: independence, normality and homogeneity of variance. These assumptions were tested and met before the statistical analyzes were performed.

To address hypothesis number three, a two-block sequential (hierarchical) regression analysis was performed. Petrocelli (2003) stated that hierarchical regression is conducted when researchers are interested in testing theoretical assumptions and examining the influence of several predictor variables on the basis of how much they each add to the prediction of a criterion over and above that which can be accounted for by other predictors. Petrocelli (2003) suggested that four major errors persist in hierarchical regression analyses conducted in the literature: (a) neglect of theoretical

basis for the use of hierarchical multiple regression, (b) violation of causal priority, (c) use of hierarchical regression in an exploratory manner, and (d) interpretation of hierarchical regression results. These possible errors were addressed in the current study and in the decision-making process of utilizing this procedure in the present study.

The specific underlying assumptions of hierarchical regression are multivariate normality, homogeneity of variances and linearity. These assumptions were tested and met before statistical analyses were executed. Block one of the hierarchical regression consisted of demographic variables which were controlled (age, gender, ethnicity and level of education) and block two consisted of the four predictor variables: perceived social support, self-efficacy of pain, level of depression, and level of ethnic identity. The outcome variables were either high risk of aberrant drug-related behavior (high results on the SOAPP®-R in Group B) or opioid misuse (positive screening on the COMM in Group A). All results were provided in the form of a discussion with relevant tables to support findings. Please see the table below.

Table 1

Hypothesis	Predictors/Independent Variables	Dependent Variables	Analytic Technique Employed
1	Gender, age, ethnicity, level of education, perceived social support, self-efficacy of pain, depression, and level of ethnic identity	Group A (CNCP patients already on Opioids) and Group B (CNCP patients not already prescribed Opioids)	Logistic Regression

2	Sex, ethnicity and the interaction between sex and ethnicity	Positive screening on the COMM in Group A or results of high risk on the SOAPP®-R in Group B	Two-Way ANOVA
3	Perceived social support, self-efficacy of pain, depression, and level of ethnic identity (after controlling for age, ethnicity, gender and level of education)	Positive screening on the COMM in Group A or results of high risk on the SOAPP®-R in Group B	Hierarchical Regression

Qualitative Data Analysis

As aforementioned, interviews were conducted and themes were generated from the interview data, according to the tenets of grounded theory research (Glaser et al., 1967). Grounded theory involves analysis as soon as data collection begins. Data collection and analysis are an interrelated process (Strauss & Corbin, 1990). The constant comparative method, the root of grounded theory, is a comparative coding process including three types of coding: open, axial and selective. The constant comparative process involved comparing phenomena in interviews, integrating them into categories and properties, and subsequently writing the theory. The stages of grounded

theory flow into one another. Earlier stages may continue operating simultaneously through data analysis.

Data analysis began from data reduction of the interviews and subsequent generation of themes using the open, axial, and selective coding (Creswell, 1998). Data were continually collected to generate theory around the core phenomena (Creswell et al., 2007) and data were compared against each other to generate an initial emerging theory. Data analysis was exploratory in nature and did not seek to prove an already existing theory. Interview questions were continually refined or adapted as theories emerged so as to saturate emerging themes for the final generation of theory (Strauss & Corbin, 1990).

Phenomena were initially examined closely in a line by line analysis as part of open coding (Creswell, 1998). Phenomena were then grouped into categories based on similarities that surfaced through the constant comparison method. Following open coding, axial coding was executed to make greater sense of categories and subcategories that were generated during open coding (Strauss et al., 1990). Upon “fracturing” the data in the open coding stage, axial coding combined themes for meaningfulness (Strauss et al., 1990). The themes of this qualitative portion of the research study were derived throughout the axial coding process. During this stage constant comparison was utilized and transcripts were continually reviewed in an attempt to explore new ways to make connections among data. Categories of interview data became linked to the core phenomena. Categories were analyzed and compared to discover strong versus weak categories that may or may not have been congruent with the core category. The core phenomena emerged through these phases until the selective coding phase.

All emergent categories were related to a core category during the final stage of coding, known as selective coding. During this phase of analysis, the core construct or category was identified and linked other categories from earlier phases. This is typically a culmination of all of the data, including personal reflection on the data, memos, and prior data analysis. In this way, the story line is formulated, which accounts for the subcategories adding to the core phenomenon. In this constant comparison method emerging theory was constantly assessed until saturation of themes occurred and coherence was achieved. The resulting theory emerged from the data. Results were presented with rich quotations from participants when possible, in an effort to convey accurately the experiences of participants. Graphical models were used to demonstrate the relationship of theoretical codes. Narrative summations were utilized to convey results. Tables were provided for visual understanding of codes and themes.

Validity and Triangulation

In an effort to ensure the validity of the grounded theory that emerged from the data, two secondary researchers and the lead researcher all independently examined transcripts and engaged in coding. During the generation of the grounded theory, consistent consultation occurred with experts in grounded theory and the study's mentor, as a validity measure for the final theory. In addition, all of the researchers participated in extracting salient quotes to help ensure that the categories truly reflected the data from the interviews. The research team met on a bi-weekly basis in person and spoke on the alternate weeks for an hourly conference call, to allow the team to be fully immersed in the data and to provide a reliability and validity check as themes emerged. Finally, the

lead researcher engaged in two different forms of memoing, which aided in the triangulation of the data.

Reading and Memo Writing

As mentioned, two forms of memo writing were employed to aid in validity and triangulation measures. The lead researcher engaged in memo writing immediately following each interview, which allowed for personal reflections and objective comments to be documented once the interview was complete. The following is an example of the objective type of memos that followed the interview with Participant A: Interview #1:

This patient appeared somewhat passive, apologetic yet very warm and sincere. She was obese and moved and spoke very slowly and softly. She was Latina and mentioned God and her faith as main supports. When asked about her experience of pain she immediately disclosed that her pain originated from domestic violence. She mentioned how she had been kicked and beaten by her ex-husband. She mentioned that she is no longer living with him but that her experiences of pain remain in her back, legs, and knees. She used very violent language to describe what her pain feelings like (a knife stabbing her, someone kicking her...etc) which reflect the experiences she has endured. She mentioned providing for her children as something that is very important to her, and working through her pain, although she works on her feet on a factory line. She also mentioned that she knows her weight has increased her experience of pain. She disclosed that she has other health problems, namely asthma and breathing difficulties, and shared that she is supposed to carry and use an oxygen tank, but does not. She said she smokes cigarettes and is not interested in quitting. She

said that her “stupidity and pride” holds her back from using this regularly. She said she takes her pain meds and takes hot baths as her main coping strategies. She said she tried street drugs to cope with pain. She said she would like to get massages but cannot afford it. She said she used to pace her physical activity but reported that she more recently has become more sedentary and struggles to even walk. She said she has limited support and mainly shares her pain experiences with a close girl friend who has cancer and understands pain and with her mother. She said doctors just want to “pump you with pills”. She said that she wishes something would just save her from her problems.

The lead researcher also engaged in an alternate type of memo writing, which is similar to journaling, and is more process focused. This allows for reflection on the process of the interviews and the research, in place of summarization of facts, or recording objective information. In reflecting on the shared process of the interview, it serves to assist in contextual grounding, which is important for understanding the meaning that participants’ ascribe to their experiences (Morrow, 2005). The following is an excerpt of a memo of this kind, in reaction to the previous Participant A interview, which was recorded on 7/3/12:

I certainly felt like I wanted to rescue her from her problems. I felt myself being pulled to match her soft spoken volume in speech. I also was being pulled to be very calm and empathic due to her timid, passive and apologetic presentation and due to the intensity of her disclosures about her domestic violence history. She seemed to exemplify someone who feels like a victim and someone who has endured significant domestic violence. She appeared to have low self-esteem and

I suspected that she may isolate herself due to her poor relationship history and trauma symptoms. I suspected that she may suffer from co-morbid PTSD symptoms. I noticed that her physical health appeared poor due to obesity and obvious wheezing and COPD/asthma like symptoms. I feared that she may continue to become more sedentary in her lifestyle and limit her engagement and effort in physical activities. She mentioned that she drank sodas at work and I was curious about her diet and nutrition and how her health behaviors may impact her functioning and may influence her coping with chronic pain. I was curious to know how her culture may impact her health behaviors. I found it interesting that she revealed that she smoked even though she has shallow breathing and difficulty with breathing due to COPD. I wondered what her relationship with smoking was and her relationship with food, and how these impacted her experience of chronic pain. She also mentioned how she “should” be using an oxygen tank but that she does not like how she will then be portrayed as sick and does not like how people may view her if she uses it in public, even though she recognized that this would be helpful. She displayed great shame and guilt at times. I wondered if she just “gives up” in certain areas of her life and then asks God to heal/care for her and her problems. She mentioned how she puts all her faith in God to take care of her problems. This is a strong and common Latina cultural influences and I wondered if this was her reasoning for having these beliefs. She mentioned how her one friend also had significant chronic health problems. I wondered if this relationship was fruitful for her because she felt as if this other person could share in her suffering and validate what her experiences

were like from having endured similar challenges and because she was female and not male. Even though I was focused on asking only the interview protocol questions, I couldn't help considering if this patient were in clinical treatment with me what techniques, approaches, and resources might be helpful. I wondered if motivational interviewing techniques could be useful for her and considered that since she revealed that she had little social support, that she might be a good candidate for therapy if she were open to the treatment culturally. She appeared slow to reveal her difficulties but did build a strong rapport and seemed to enjoy having someone to talk to. I suspect if I were male this relationship would have been different, most likely not as open and warm. She seemed to enjoy the interview and shared that she felt better having shared some of her past and concerns with someone.

These two forms of memo writing were helpful for the lead researcher in both the objective recording and chronicling, and the subjective processing of the interviews and interpretation of the data. They were used for these reasons and as an added measure of triangulation.

Ethical Considerations

This proposed study was reviewed by the University of Denver's Internal Review Board (IRB) prior to data collection, in an effort to maintain the highest standard of ethics in human subjects research. Informed consent forms were utilized in an effort to clearly inform all participants as to the nature and purpose of the study. Participants were informed at that time, both orally and in written format, as to their rights associated with their participation, including their right to withdraw from the study at any point without

penalty of any kind. Appropriate contact information was provided to ensure accountability of this researcher, my mentor, and academic institution. Strict adherence of confidentiality was employed to protect the identities of participants. Interviews were arranged the same day as participants' physician appointments for convenience to reflect respect for participants' time and efforts and to ensure completion of data collection.

Given the sensitivity of patient information, such as chronic pain conditions and prescription use utilized for screening for inclusion criteria, confidentiality of patient information followed all protocols required by HIPPA guidelines and as stated by Salud Family Health Care Centers. Upon completion of self-report measures, questionnaire results were scanned into patients' charts to ensure continuation of care and assist physicians in speedily becoming aware of patients that may ethically benefit from an immediate follow-up. This was noted in the patients' informed consent forms and was employed to ensure patients' rights and APA's ethical principles of beneficence, nonmaleficence, fidelity, justice, integrity and autonomy.

The issues of researcher as an instrument, researcher subjectivity and reflexivity, and adequacy of data were addressed in the study (Morrow, 2005; Ponterotto & Grieger, 2007). It is suggested in grounded theory literature that researchers explore their cultural biases and positionality prior to the interviewing and coding processes. Throughout the interview and coding process researcher subjectivity and reflexivity were examined. Managing potential researcher biases is important in qualitative research. I was cognizant of the importance of "bracketing" my experiences, and setting aside assumptions and suspending judgments on the experience of phenomena being studied. Literature suggests it is important for researchers to "own one's perspective" (Ponterotto

& Grieger, 2007). This owning one's perspective will be integrated by my disclosing of personal and theoretical orientations, values and assumptions that could affect the research (Morrow, 2005).

This present study included frequent credibility checks and quality control through the primary researcher's explorations of biases and through the choice of operating with two graduate student auditors. Thick description of researcher biases, participant information and procedures will be employed in an effort to convey the context and meaningfulness of the research (Ponterotto, 2006; Ponterotto & Grieger, 2007). Attention was paid to Haverkamp's (2005) three cornerstones necessary for qualitative research decision making, including the examination of foundational ethical principles, conscious application of an attitude of care, and consideration of virtuous character. The adequacy of data was of utmost importance in this study.

Ethical consideration was also given to participants' discussion of potentially sensitive information. In an effort to address this, I frequently conducted "check-ins" with participants to assess their feelings and to establish if they would like to continue. Participants who may have required additional support were referred to their primary care physicians.

CHAPTER FOUR: RESULTS

Chapter IV describes the results of the quantitative and qualitative analyses of the data. The chapter begins with preliminary analyses including data cleaning, outliers, descriptive statistics, correlations and reliability of measures. Quantitative results of the three hypotheses are described and summarized followed by a thorough description of qualitative results. The three overarching domains are displayed in tables and codes are revealed and described. Lastly, Figure 1 demonstrates how the selective codes operate together and integrative findings are described and summarized.

Quantitative Results

Preparing the Data

Descriptive analyses were run using Statistical Package for the Social Sciences version 16.0 for Windows (SPSS 16.0) to detect non-permissible values. Of the 102 participants' questionnaires gathered, eleven participants in Group B (CNCP patients not prescribed opioids) did not complete the reverse side of questionnaires (two MEIM, two SPQ, two PSE-Q, three PSE-Q, one PHQ-9, and two SOAPP®-R) which contributed to missing data. One participant in Group A (CNCP patients prescribed opioids) did not complete the reverse side of the MEIM measure which also contributed to missing data.

These total score values remained as missing because too few items were answered. In addition, four participants in Group B (CNCP patients not prescribed opioids) left one item blank. This was 4% or less of the items, missing at random; thus, the total score for those four participants were adjusted to account for missing item responses. No entire cases or variables were deleted from analyses. Eleven outliers were found, including four cases in Group B (CNCP patients not prescribed opioids) and six cases in Group A (CNCP patients prescribed opioids). Several methods for handling outliers are suggested in the literature. In this study, data were transformed into new, less deviant values by changing the raw scores to one unit larger or smaller than the next most extreme value, as noted by Tabachnick and Fidell (2007). Moreover, the three demographic variables, age, ethnicity, and education, were transformed into different variables due to the limited number of cases in several categories within each variable. For example, as noted below in the demographic table, the two primary ethnic groups in this sample were Caucasian and Hispanic and all other ethnic group categories did not contain enough cases to be included in statistical analyses. Therefore, this variable was categorized to include only Caucasian and Hispanic participants. Level of education was collapsed into three versus six categories as shown below, in Table 2, and similarly age was collapsed into three versus six categories. The additional cases that did not fit into these main demographic categories were not included in analyses.

Preliminary Analyses

Table 2

Overview of Demographic Variables

Demographics	Frequency Total	Group A: Opioids	Group B: No Opioids
	102	46	56
<i>Gender</i>			
Male	34	13	18
Female	68	30	38
<i>Recoded Age</i>			
18-35	18	8	11
35-55	57	27	30
55 and older	26	11	15
<i>Pain</i>			
Lower Back Pain	37	16	21
Fibromyalgia	15	6	9
Multiple Pain Sites	36	20	16
Other	13	4	9
<i>Longevity of Pain</i>			
6 months- 2 Years	14	6	8
3- 5 Years	35	13	22
6- 10 Years	27	13	14
11 Years and Beyond	26	14	12
<i>Language</i>			
English	96	44	52
Spanish	6	2	4
<i>Recoded Ethnicity</i>			
Hispanic	24	10	14
Caucasian	60	29	31
<i>Marital Status</i>			
Married/Partnered	13	8	5
Separated	25	9	16
Divorced	18	9	9
Widowed	7	4	3
Single	39	16	23

<i>Roommates</i>			
None	17	9	8
One	29	14	15
Two	13	6	7
Three or More	41	17	24
<i>Recoded Education</i>			
Under 12 Years	42	18	24
High School Grad	33	16	17
College and Beyond	27	12	15
<i>Employment</i>			
Full- Time	6	0	6
Part- Time	13	5	8
Unemployed	28	11	17
Student/Retired	6	2	4
SSI Funds	49	28	21
<i>Medication</i>			
None	8	0	8
Marijuana	2	0	2
Neurontin	1	0	1
NSAIDS	6	0	6
Antidepressant	28	0	28
Flexeril	7	0	7
Floricit	4	0	4
Vicodin	9	9	0
Percocet	18	18	0
MS Contin	1	1	0
Oxycontin	2	2	0
Morphine	7	7	0
Methadone	2	2	0
Tramadol	7	7	0
Fentanyl Patch	1	1	0

Descriptive Statistics for Independent and Dependent Variables

Descriptive analyses of the independent, dependent, and control variables included in the study were performed to determine if the responses were normally distributed within this sample of chronic pain patients (see Table 3 and Table 4). An

examination of the data indicated that the responses were normally distributed within the sample with the exception of the SPS for Group B. As the skewness was not due to outliers, no transformation of SPS was used.

Table 3

Descriptive Statistics for Group A (CNCP patients prescribed opioids)

Variable	N	Mean	SD	Range	
Skewness/Kurtosis					
<i>Independent Variables</i>					
PHQ-9	46	13.30	6.98	0-27	-.04/-
.71					
SPS	46	73.07	12.24	45-94	-.11/-
.82					
PSE-Q	46	19.04	10.61	0-42	.48/-
.38					
MEIM-R	45	31.20	6.86	17-43	-.35/-
.51					
<i>Dependent Variables</i>					
COMM	46	11.43	7.34	1-31	.51/-
.07					

Note. Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R), Current Opioid Misuse Measure (COMM)

Table 4

Descriptive Statistics for Group B (CNCP patients not prescribed opioids)

Variable	N	Mean	SD	Range	
Skewness/Kurtosis					
<i>Independent Variables</i>					
PHQ-9	55	11.69	7.63	0-25	.13/-
1.44					
SPS	54	72.30	11.57	52-95	1.30/-
1.00					
PSE-Q	53	27.25	15.69	2-59	.08/-
.84					

MEIM-R	53	29.07	8.68	14-49	.27/.01
<i>Dependent Variables</i>					
SOAPP®-R	54	23.61	11.60	0-49	.34/-
					1.44

Note. Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R), Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP®-R)

Reliability of Measures

Estimates of reliability using a measure of internal consistency (Cronbach's alpha) of the measures were strong, .8 and higher, and are displayed in Table 5.

Table 5

	<i>Group A: Opioids</i>	<i>Group B: not on Opioids</i>
Variable	Cronbach's alpha	Cronbach's alpha
1. SPS	.89	.87
2. PHQ-9	.88	.91
3. MEIM-R	.87	.89
4. PSE-Q	.90	.96
5. COMM/SOAPP®-R	.83	.83

Note. Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R), Current Opioid Misuse Measure (COMM), Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP®-R)

Correlations of Variables

Tables 6 and 7 provide the correlation coefficients for the independent and dependent variables and two demographic variables included in this study. The Pearson correlation coefficients of measures were calculated to describe the strength and direction of the linear relationship between variables.

Table 6

Correlation Coefficients for Group A (CNCP patients prescribed opioids)

Variable	1	2	3	4	5	6	7
1. COMM	1.00						
2. PHQ-9	.35*	1.00					
3. PSE-Q	.05	-.51**	1.00				
4. MEIM-R	-.09	-.34*	.20	1.00			
5. SPS	-.39	-.51**	.10	.10	1.00		
6. Gender	.18	-.08	.12	-.09	-.07	1.00	
7. Recoded Ethnicity	-.09	.03	.06	-.14	-.01	.32*	1.00

Note. * = $p \leq .05$, ** = $p \leq .01$; Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R), Current Opioid Misuse Measure (COMM)

Table 7

Correlation Coefficients for Group B (CNCP patients not prescribed opioids)

Variable	1	2	3	4	5	6	7
1. SOAPP®-R	1.00						
2. PHQ-9	.57**	1.00					
3. PSE-Q	.05	-.47**	1.00				
4. MEIM-R	.21	.04	.19	1.00			
5. SPS	-.43**	.19	.38*	.13	1.00		
6. Gender	.17	.22	-.20	.12	-.03	1.00	
7. Recoded Ethnicity	.18	.19	-.17	-.31	-.29	.21	1.00

Note. * = $p \leq .05$, ** = $p \leq .01$; Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R), Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP®-R)

Hypothesis One:

A hierarchical logistic regression analysis was performed to assess prediction of membership in one of two group, participants prescribed opioids and those who were not. The demographic predictors, including gender, recoded age, recoded ethnicity, and

recoded education, were entered in the first block. The additional four predictors entered in the second block were depression (total score on the PHQ-9), ethnic identity (total score on the MEIM-R), perceived social support (SPS) and pain self-efficacy (PSE-Q). Assumptions of normality and the use of discrete outcome variables were upheld, with the exception of SPS, which was somewhat skewed. However, the assumption of linearity in the logit was violated. Pain self-efficacy was a significant individual predictor in the logistic regression; however, based on the violation of linearity in the logit, further investigation and transformations of this variable were necessary. Nonlinear transformations--square root, natural logarithm, and squared transformations were first attempted with no success. However, the subsequent quartile categorization of the pain self-efficacy variable was used and was successful in achieving linearity in the logit in the logistic regression.

The overall pain self-efficacy variable was found non-significant, but one category of the variable was found to be predictive of chronic pain patients' being on opioids or not. It appears that extremely high and low values of reported pain self-efficacy are not predictive but moderate values of pain self-efficacy are predictive in the regression. According to both chi-square residual and the Hosmer-Lemeshow test, model fit was adequate at each step. The predictor variables reliably distinguished between participants prescribed opioids and those who were not. With regard to effect size for the overall regression, the Nagelkerke R^2 was 0.20, $p = .70$. Table 8 provides regression coefficients and chi-square tests results, as well as odds ratios. The group of participants not prescribed opioids for chronic pain were .12 times more likely to report moderate levels of pain self-efficacy than participants who were not prescribed opioids. A

subsequent independent samples t-test was run to confirm the difference between the two group means on pain self-efficacy. The mean difference between the two groups was 8 points, $p=.01$. Group One, participants on opioids, had a group mean of 19.24 and Group Two, participants not on opioids had a group mean of 27.24.

Table 8

Logistic Regression Prediction for Participants being on Opioids: Regression Coefficients, Chi-Square results and Odds Ratios

Variables	B	S.E.	Wald	df	p	Exp(B)
Gender	-.42	.59	.52	1	.47	.66
Recethnicity	-.51	.65	.62	1	.43	.60
Recodage			.04	2	.98	
Recodage(1)	-.07	.82	.01	1	.93	.93
Recodage(2)	.06	.63	.01	1	.92	1.10
Recoeducation			1.34	2	.51	
Recoeducation(1)	.31	.70	.20	1	.66	1.37
Recoeducation(2)	-.40	.68	.35	1	.55	.67
TotalScorePHQ9	.00	.04	.00	1	.98	1.02
TotalScoreMeim	-.05	.04	2.27	1	.13	.95
TotalScoreSPQ	-.04	.03	2.74	1	.10	.96
Categorized PSEQ			6.53	3	.09	
Categorized PSEQ(1)	-1.74	1.00	2.99	1	.08	.17
Categorized PSEQ(2)	-2.11	.85	6.23	1	.01*	.12
Categorized PSEQ(3)	-1.00	.84	1.45	1	.23	.37
Constant	7.39	2.99	6.10	1	.01	1611.17

Note. * = $p \leq .05$; Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R)

Hypothesis Two:

To address Hypothesis Two, a two-way Analysis of Variance (ANOVA) was employed to compare the group means for categories of two independent variables (sex, ethnicity and the interaction between sex and ethnicity) with one dependent variable, either high risk of opioid misuse (high results on the SOAPP®-R in Group B) or aberrant drug-related behaviors (positive screening on the COMM in Group A). Assumptions of normality and homogeneity of variance were tested and met for both Group A (CNCP patients prescribed opioids) and Group B (CNCP patients not prescribed opioids). Independence was upheld. The 2x2 ANOVA yielded nonsignificant main effects for sex and ethnicity and a nonsignificant interaction between sex and ethnicity for both the prescribed and nonprescribed groups. Please see Tables 9 and 10 below for these results.

Table 9

Tests of Effects of Ethnicity and Gender on risk of aberrant drug-related behavior for Prescribed Group

Source	df	F	p	Partial Eta ²
Recoded Ethnicity	1	1.27	.27	.03
Gender	1	2.85	.10	.08
Ethnicity*Gender	1	.07	.80	.00

Table 10

Tests of Effects of Ethnicity and Gender on risk of aberrant drug-related behavior for Non-prescribed Group

Source	df	F	p	Partial Eta ²
Recoded Ethnicity	1	.82	.37	.02
Gender	1	2.61	.12	.06
Ethnicity*Gender	1	.089	.77	.00

Hypothesis Three:

To examine the unique contribution of predictor variables on whether patients were at risk of aberrant drug-related behavior, hierarchical multiple regression analyses were performed. Variables were entered in two steps. In Step 1, demographic variables (a) recoded age, (b) recoded ethnicity, (c) recoded education, and (d) gender were the independent variables. In step 2, total score SPS, total score PSE-Q, total score PHQ-9 and total score MEIM-R were entered. In the data set of participants prescribed opioids, Group A, total score COMM was the dependent variable and in the data set of participants not prescribed opioids, Group B, total score SOAPP®-R was the dependent variable. The COMM and SOAPP®-R are screening measures for the risk of aberrant drug-related behavior in chronic pain patients. Before the hierarchical multiple regression analyses were performed, the independent variables were examined for collinearity.

The results of Step 1 for the outcome of total score on the outcome measure in participants prescribed opioids indicated that the variance accounted for ($R^2 = .104$, adjusted $R^2 = -.008$), was not significantly different from zero ($F_{(4, 32)} = .933, p = .458$). There were no statistically significant predictors in Step 1. In Step 2, the four independent measures were entered into the regression equation. The change in variance accounted for (ΔR^2) was .28, which was statistically significantly different from zero ($F_{(4, 28)} = 3.20, p = .028$). The unstandardized regression coefficients (B) and intercept, and the standardized regression coefficients (β) for the full model are reported in Table 11. Only two of the predictor variables (level of depression as measured by the total score on the PHQ-9 and level of pain self-efficacy as measured by the total score on the PSE-Q)

contributed significantly to the explanation of patients being at risk for aberrant drug-related behavior in Group A, or patients prescribed opioids. The higher the level of depression, the more likely the patient displayed risk for opioid misuse. Interestingly, the higher the level of pain self-efficacy or confidence in engaging in activities despite pain, the more likely the patient displayed risk for opioid misuse.

The results of Step 1 for the outcome of total score on the outcome measure for participants not prescribed opioids indicated that the variance accounted for ($R^2 = .108$, adjusted $R^2 = .008$), was not significantly different from zero ($F_{(4, 36)} = 1.085$, $p = .378$). In step 2, the four independent measures were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .50 which was statistically significantly different from zero ($F_{(4, 32)} = 10.31$, $p \leq .001$). The unstandardized regression coefficients (B) and intercept, and the standardized regression coefficients (β) for the full model are reported in Table 12. Three of the predictor variables (level of depression as measured by the total score on the PHQ-9, level of perceived social support as measured by the total score on the SPS, and level of ethnic identity as measured by the total score on the MEIM-R) contributed significantly to the explanation of patients being at risk for aberrant drug-related behavior in Group B, patients not on or prescribed opioids. The higher the level of depression and the higher the level of ethnic identity, the more likely the patient displayed risk for aberrant drug-related behavior. Conversely, the higher the reported levels of perceived social support, the less likely the patient was at risk for aberrant drug-related behavior.

Table 11

Hierarchical Regression Coefficients for the Model and Variables as Predictors of total COMM- Group A, Participants on Opioids

Variables	<i>B</i>	β	<i>t</i>	<i>p</i>
<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	<i>R</i> ² Δ	<i>F</i>
Intercept	27.66		1.99	<.05*
Recoded Age	-.29	-.27	-1.65	.11
Recoded Ethnicity	-4.20	-.25	-1.50	.48
Recoded Education	1.18	.08	1.38	.17
Gender	-1.52	-.09	-1.36	.18
PHQ-9	4.15	.25	3.39	<.01**
PSE-Q	5.28	.27	4.10	<.01 **
SPS	1.28	.09	1.70	.09
MEIM-R	-.88	-.06	.32	
MODEL 1	.32	.10	-.01	.10 .93 .46
MODEL 2	.62	.39	.21	.28 3.20 .03*

Note. * = $p \leq .05$, ** = $p \leq .01$; Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R)

Table 12

Hierarchical Regression Coefficients for the Model and Variables as Predictors of total SOAPP®-R- Group B, Participants not on Opioids

Variables	<i>B</i>	β	<i>t</i>	<i>p</i>
<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	<i>R</i> ² Δ	<i>F</i>
Intercept	19.16		1.36	.18
Recoded Age	-1.12	-.01	-.05	.96
Recoded Ethnicity	2.81	-.11	.68	.50
Recoded Education	-1.34	-.10	-.72	.48
Gender	3.78	.15	1.15	.26
PHQ-9	.81	.53	3.76	<.00**
PSE-Q	.10	.14	.90	.38
SPS	-.37	-.34	- 2.41	.02*
MEIM-R	.47	.35	2.82	.02*
MODEL 1	.33	.11	.01	.11 1.09 .38
MODEL 2	.78	.61	.51	.50 10.31 <.00**

Note. * = $p \leq .05$, ** = $p \leq .01$; Patient Health Questionnaire-9 (PHQ-9), Social Provisions Scale (SPS), Pain Self-Efficacy Questionnaire (PSE-Q), Multi Ethnic Identity Measure-Revised (MEIM-R)

Summary of Quantitative Results

Hypothesis Two, a two-way ANOVA, found non-significant effects of sex, ethnicity and the interaction between sex and ethnicity, for Group A and Group B. These results infer that the results of Hypothesis One and Hypothesis Three are generalizable by sex and White and Hispanic populations. The results from Hypothesis One, a

hierarchical logistic regression analysis, indicated that participants' level of pain self-efficacy was found to be a statistically significant predictor for distinguishing whether participants were prescribed opioids or not. However, the relationship between pain self-efficacy score and group was complex; moderate levels of pain self-efficacy were predictive of group while low and high levels were not. Participants not prescribed opioids for chronic pain were .12 times more likely to report moderate levels of pain self-efficacy than participants who were prescribed opioids. Results from Hypothesis Three, a hierarchical multiple regression, indicated that two predictor variables (level of depression and level of pain self-efficacy) in participants on opioids, contributed significantly to the explanation of patients being at risk for aberrant drug-related behavior. Additionally, three predictor variables (level of depression, level of perceived social support, and level of ethnic identity) in participants not prescribed opioids, contributed significantly to the explanation of patients being at risk for aberrant drug-related behavior. The higher the level of depression and the higher the level of pain self-efficacy, the more likely the patient displays risk for opioid misuse, in patients already prescribed opioids. In Group B, participants not already prescribed opioids, the higher the level of depression and the higher the level of ethnic identity, the more likely the patient is at risk for aberrant drug-related behavior. Conversely, in this group of participants, the higher the reported levels of perceived social support the less likely the patient is at risk for aberrant drug-related behavior.

In summary, level of depression was a predictor for both groups. However, in patients already prescribed opioids, level of pain self-efficacy was an additional

predictor, and in patients not already prescribed opioids for chronic pain, level of perceived social support and level of ethnic identity were additional predictors.

Qualitative Results

Following in-depth analyses of the 10 interviews, 43 open, 9 axial, and 5 selective categories emerged (see Tables 14, 15, and 16). There were three important domains that emerged to describe this complex phenomenon. These include (1) *Coping with Chronic Pain*, (2) *Professional Treatment used for the Management of Chronic Pain*, and (3) the *Nature of Chronic Pain*. To review, open coding is the part of analysis concerned with identifying, naming, categorizing and describing phenomena found in the text. Dialogue is examined line by line in this open coding process. Axial coding is the process of relating codes (categories and properties) to each other, via a combination of inductive and deductive thinking. To simplify this process, rather than looking for any and all kind of relations, grounded theorists emphasize causal relationships, and fit data into a basic frame of relationships. Finally, selective coding is the process of recognizing an emerging core category and relating all other categories to that category.

Table 14 describes the open, axial, and selective categories that reflect coping with chronic pain. Table 15 describes the open, axial, and selective categories that reflect professional treatment used for chronic pain. Table 16 describes the open, axial, and selective categories that reflect the nature of chronic pain. These tables are shown following the subsequent domains' section. All of these categories contributed to the formation of the final grounded theory. Table 13 displays the demographics of the ten participants. Tables 14, 15 and 16 are displayed following the subsequent domains and categories.

From these categories, a grounded theory was formulated and is described in the Balanced Scale Image (see Figure 1) and in a tentative grounded theory that follows the image description. Based on the data that emerged, it was determined that chronic pain is a complex phenomena with many dynamic factors affecting how one manages chronic pain. Throughout the study it became clear that there were unexpected influences that impacted chronic pain patients' functioning.

Table 13

Participant Self-Reported Demographic Information

Part.	Age	Sex	Ethn	Status	Pain	Longevity	Opioids
A	41	F	Latina	Widowed	CP- knee, back, legs	7 years	Yes
C	44	F	Mixed	Single	LBP	16 years	Yes
E	51	M	White	Married	CP- shoulders, knee	10 years	Yes
H	43	F	White	Widowed	Fibromyalgia	10 years	Yes
J	55	M	White	Single	CP- back, knees	31 years	Yes
B	36	F	White	Married	Fibromyalgia	8 years	No
D	41	F	White	Divorced	Osteoarthritis	2 years	No
F	55	F	White	Divorced	Fibromyalgia	4 years	No
G	54	M	White	Divorced	CP- back, shoulders	20 years	No
I	46	M	Mixed	Married	LBP	10 years	No

As the findings suggest, coping with chronic pain, the nature of chronic pain, and treatments used for chronic pain are influenced by many factors. Major themes emerged across the three domains. To begin, the first domain of coping with chronic pain is described beginning with the first selective category from the data.

Coping with Chronic Pain

Social Support (Selective)

Social support was described as a main coping strategy for chronic pain amongst all participants. Relationships that were perceived as a positive support were either a helpful distraction, displayed understanding, and/or were useful in finding purpose and meaning in life. Types of positive social support (Axial) described included familial relationships (Open), relationships with faith and/or God (Open), pets (Open), therapists (Open) and support groups (Open). All but two participants described their positive relationships with family members as a major coping strategy for dealing with chronic pain. Family members were influential in helping participants cope with the day to day challenges of chronic pain and provided emotional and physical support. Family members described as positive supports were a spouse/partner, parents and/or children.

H: I only have the one child and I only have the one grandchild, so uh, those, having those as a distraction at times has been very good, I think very good for me in the last, especially since I've been visiting with them consistently now since January. Hugs and kisses from baby girl are some of the best medicine I get.

The two participants that did not mention family members as positive supports were both homeless. One homeless male participant, participant F, described his social worker and his physicians as his main positive supports. The other homeless male

participant, participant K, who resided on the streets, described his dog as his main positive support. In addition, several participants who highlighted familial support as their most positive support also mentioned pets as additional supports for coping.

I: I have a service dog and she's a 140lb Saint Bernard-Shepherd mix and when I go fishing I tie myself to her at around my waist and she, cause she knows before I'll have a seizure, 10 minutes before I'll have a seizure... That, I mean, she's a companion that lives for me and I live for her and we take care of each other and that we have a very good relationship. You know? That I don't think there would be any human or any other type of animal that I could make that connection with or that could do that for me...

The most preferred overall positive social support from participants was a friend or family member who also suffered from a chronic illness (Open). Participants stated that the feeling of validation, empathy and understanding from someone who also suffered from a chronic condition was the type of positive support from a family member or friend that was most beneficial.

A: Um, I only have one really close friend and she seems to understand but she is going through cancer right now. She's got breast cancer. She's only thirty-two years only. She has one baby and we seem to communicate really good. The other person would be my mom. She has chronic arthritis.

C: Yeah. All of my family is very supportive. Um, one of my sisters has a few medical issues also. So she kind of knows where I'm at with my pain sometimes. And other than that, anytime we go to a family affair or anything where we have friends and family, everybody tries to do something for me. Ya know. "Can I get

you something to drink?" or "Do we need to help you to your car?" So I have everybody really helping me.

E: You know what I mean. It's, you know, I mean, half the guys I run around with, you know been in motorcycle accidents, or a war vet, or you know lift weights, or you know been in, or had some kinda trauma in their life that, you know, it, you know, I would assume everybody's in some degree of pain.

Many participants spoke about God, faith, church and/or Jesus as a positive social support for coping with chronic pain. A few of these participants who found religion as a positive support, were also recovering alcoholics and additionally mentioned Alcoholics Anonymous support groups as a positive coping strategy for dealing with chronic pain.

G: I enjoy my walk with Jesus. Yeah, I ask him, you know, help this pain go away. I talk to him about it occasionally. He knows everything, but you know it's nice to be able to vent to somebody that doesn't talk back to you that way. He just, you know, kinda keeps me in my place I guess you could say.

I: I go to Alcohol's Anonymous and I believe in it intensely that I believe that's the only thing that has ever stopped me from drinking [mmm] and that um, I believe in the lord. That I have deep faith in the lord and my family [mm-hmm] you know? That helps me cope a lot.

Strategies for coping with chronic pain were described as being heavily influenced by messages from the participant's family of origin (Axial). An influential familial message or belief mentioned by over half of the participants was the importance of being portrayed as strong versus weak (Open). This belief was described as

originating from messages given by family members during childhood that translated into beliefs as a young adult about what how one “should” behave and be portrayed. Many participants described the value of being portrayed as strong as very important and being portrayed as weak as unacceptable.

B: Um, I don’t know that I necessarily cope with it very well, because I was brought up in my family that you don’t have pain and you don’t have illness and you are a strong person... Yeah, yeah that is my worry that she, again, will see me as being weak and not a strong person.

In addition, several participants stated that asking for help was challenging (Open). These participants stated that this challenge was related to the value of being portrayed as strong, as being valued as a person who cares for others, and someone who others can depend on. The experience of pain made these participants feel ashamed about having to ask for help. These messages impacted participants’ choices for how to engage in relationships and utilize social support as a strategy for coping with chronic pain.

B: I feel a little overwhelmed that I’m just feeling like I’m bombarding people with my problems. And I’m not a big one for that, I’m a big one on helping other people, not people helping me... That’s a big one for me, is I’m not very good at asking for help.

C: And I also think that people who tend to be in a state of pain for many years, like me, they are afraid to ask or they get tired of asking people for help and they are like, "I'm always asking for help. I'm always asking for something."

Moreover, societal gender influences impacted the use of social support. Several male participants stated that men must be portrayed as strong and that expressing that one was in pain was not something a man “should” do (Open). These societal and social gender influences were mentioned by several male participants.

E: I think dudes do it different than chicks anyway, you know, I mean... Unless I've been, you know I've been in situations where I've overheard some men, I use that word lightly, that just sitting there crying like a couple a kids, you know about shit that I wouldn't even think twice about... I mean if you've got a dude over here in a room full of girls and, you know, he's hurting he may not act like he would if he was by himself, you know, with a doctor.

G: I guess that's my biggest worry is being a crybaby. That's how, instead of wimp, a crybaby. I got other terminology. (Laughing.) You know, I've been through motorcycle accidents, car wrecks, you know, and fights and I've been through a lot. And I've got a lot of reasons to be in pain but I really don't want anybody to know about it. (I see.) You know, I've had a lot of pain in my life, but I'm not a crybaby.

(Selective) Self-Management

Medication management (Axial) was a main source of coping for many chronic pain participants. Five out of ten participants were prescribed opioids for chronic pain. All five participants prescribed opioids stated that at some point during their course of treatment for chronic pain, either currently or in the past, they felt unhappy about having to take opioids for chronic pain (Open). All of these patients stated that they wished they

didn't need to take these medications but stated that they could not manage their condition without the use of them.

C: Yeah, a lot of frustration because I don't like taking it, but I know I have too.

Ya know, and that's very frustrating.

C: I would love to be off the pills. I would love that and they're hard on your liver, ya know, and I already have kidney problems and gallbladder problems, I really don't need that on top of it and that is the reason why I really watch my medication now and in addition, my doctor, the doctor that I have, he is wonderful, and he monitors me very closely. Like the doctor that I had before him, he um would prescribe me, and I knew it was a lot at the time because I need these medications. I'm not going to say anything about it and get it taken from me, ya know? So that is another, ya know, can't say anything because something might come out of it. But he used to prescribe me 100-10 Vicodins, which is the 10 milligrams, 100 with them with 5 refills, so that was 600 pills right there for 6 months. And my doctor now there is no way that he would do something like that, and he monitors, I'm on a narcotics agreement him.

Most participants prescribed opioids had mixed emotions about being on the medications long-term for pain management. Several participants prescribed opioids for chronic pain stated that they felt ashamed or that they feared addiction. Others stated that while they used to feel shameful to take opioids for chronic pain, they noticed that they developed into a place where they were able to accept being on the medication because it allowed them to function at a higher level. Medication treatment assisted them in accomplishing chores, work and/or hobbies, falling asleep and maintaining relationships.

H: I have mixed emotions about it. Um, one of the things that my pain management doctor had explained to me before has to do with that you have to get the relief from the pain or the pain will get worse. Being that the neuro-pathways between what's creating the pain in your brain is like a two-lane highway, and if you're always skipping pain medicine, that type of thing, that two-lane highway becomes a freeway. And the pain message gets there more readily and faster and that type of thing. So...but I also grew up with people that had addiction problems. Uh, stepfather was horrible, uh drug, not drug but alcoholic. And I've seen what that does to people and because of that I always tend to err on the low side of whatever and that's one of the things that they've cautioned me against that it will make it get worse if I don't take enough of the pain medicine so that it's always okay, well how much is enough and how far gone does the pain really have to be? Because to me, it's never really gone 100%, ever. But, you know, if you don't notice it so much, to me that's taken care of. You know, if you get rid of that nagging part of it, then it's okay... To me, I consider that good pain management. You know, I don't have the expectation that the pain is gonna be gone, gone. So, from that standpoint, I don't mind taking the heavier drugs in order for that to take place. But I don't want to get to the point where it's...not a benefit...that the benefits don't outweigh the negative portions of it... Okay, I'm gonna take it. You know because at least I can be up and functional some hours of the day.

Several participants were aware that they were now addicted (Open) to pain medication.

C: I don't like being on the medication, number 1, because it is addictive. I am addicted. Anybody that says they are not are lying. I've been on it for 15 years,

I'm addicted. Even if I'm not in pain and I am having a really good day and things are going smoothly, if I lay in bed and start to, ya know, want to relax my nerves just like, they are like on end because they need to be, I called "feed."... It just feels like my nerve endings are at the top of my skin and they are raw and they are going nuts. So even if I am not in pain, I have to take at least a half a pill... That's exactly what it is for. It's not because I am in pain, it's because if I don't I won't sleep all night because my nerves just feel like they are raw. Ya know, like they are poking up, so it is definitely addiction.

Interestingly, many participants mentioned that they tried using street drugs (Open) and alcohol (Open) to cope with chronic pain but found these methods unsuccessful.

I: I don't think anybody who is in constant pain wouldn't get depressed. And I use to cope with that depression by drinking alcohol. Well I learned really quick that doesn't work. You know, so when they did put me on antidepressant and they work, I couldn't believe the difference. You know? So it is a big part of the treatment program, you know? That they go hand and hand.

A: Um, besides medication. Um, I'm not going to lie to you. I've even tried drugs to see if the drugs would take the pain away. All they do is just make me grouchy and sleepy.

Several participants disclosed the current use of marijuana (Open) as a strategy for coping with chronic pain. All participants who used Cannabis found this treatment helpful.

I: And ah, I'm glad that Colorado passed the medical marijuana bill so that people can smoke it because I do think that it physically helps with pain but mentally

keeps your brain, or mind off of it and helps you relax enough to where you can eat or sleep you know?

G: And he's like, "You know, I tell you what, I'll give you Codeine. I'll give you whatever you want. Because I know you're in a lot of pain." I says, "No, that's alright, doc. That stuff's addictive." He says, "What do you do for pain?" I says, "Smoke marijuana." "Does it help?" I says, "Well no, not really. It just alters my mind so it don't bother me." He didn't have a problem with it, so. But, uh, I don't smoke a lot of marijuana, too damn expensive anymore. And my lungs aren't in that good of shape.

Five out of ten participants were not using opioids but three were using high doses of NSAIDs (Open), three were prescribed muscle relaxants, and three were taking an antidepressant (Open).

F: ...when it gets really bad, I take ibuprofen, because ibuprofen helps it. But I have not pursued any other pain, because that's my personal choice, is if I can possibly avoid it I don't want to do it. I don't react well to pain meds, I never have, you know. I don't want to take them... When the achiness is bad enough, that's what will cut it, and I mean I'm talking 600 to 800 milligrams, I have to take, to knock it back.

Participants prescribed antidepressants felt that these medications were helpful in managing their chronic pain and mood instability regardless of whether they were also taking an opioid medication.

H: Now, since Lyrica, that has been toned down. It still gets sometimes that bad, where it still feels like its tearing but its not as....piercing or uh, sharpness is taken away from it. And the Lyrica also does that for the sciatica pain as well. It seems to keep a lot of that to more of a dullness instead of the really sharp pain that it has been in the past.

Two participants were not taking any form of medication. The participants who were not taking opioids stated that they feared addiction and feared the side effects of these medications (Open).

B: Um, I have tried several different things. Um, I tried narcotics. Um, Vicodin tends to make me really, like wired and I can't sleep. And it, I just don't like the effects of it, um and I like to be able to function for the most part and I get very drowsy on a lot of pain medication.

Non-medication methods (Axial) of coping that were the most popular amongst participants were the use of heat (Open), (either baths, hot showers or heating pads), pacing of activities, and increased exercise (Open).

B: Heat is my number one, I am a huge heating pad user. I use that every single day. And I sleep with it, even though you're not supposed to, but that's the most, that's how I can get my body to relax and decompress.

C: I live with my heating pad... If my lower back is hurting a lot and I put the heating pad and lay up against it, ya know, sitting up, it helps a lot.

D: Hot showers, take a lot of hot showers, let the hot water run but that only takes the pain way for like 20 minutes

Participants who mentioned pacing (Open), made efforts to not lead sedentary lives and focused on balancing physical activity with inactivity in their management of chronic pain. Many patients who were overweight described wishes of focusing on weight management (Open) and noted that increasing physical exercise (Open) was a goal for them to assist in decreasing their weight and consequently their experience of pain.

G: To cope with the pain? Well, I ride my bike sometimes when the pain gets to be, I don't know, I'll go for a ride. Not a real long ride, I mean, I don't know...it kinda helps.

F: I need to walk a certain amount, you know, to make it okay, to make it better. But then if I go beyond a certain point, it makes it worse... So I need to keep up short walks because I know that it gets worse if I don't do anything and then I try to do something, it's much worse than if I on a daily basis walk a little bit.

C: And exercise is also very important. You have to know what kinds of exercises are good for your body though.

I: And I exercise as much as I can because I don't want anything to atrophy.

Several pain patients utilized a cane (Open) to assist with balance, standing and walking to cope with chronic pain and/or a brace to assist with instability.

H: So I actually get tendonitis really bad in that foot. I have a leg brace and everything else. So it's, you know, it's best if I get up and walking 'cause it stretches that tendon out, you know

In addition, several chronic pain patients mentioned the importance of engaging in pleasurable activities (Open) and alluded to how this assisted in distracting them from their experience of pain.

H: I will actually play video games because I've found that if I just lay there and think about the pain it just makes it worse. So I will try to distract my mind, and I use video games, or I'll use reading...

I: Yeah, I can still fish. I can still take long walks and, you know, I spend a lot of time with my dog. I mean all my time with my dog... laughter

Moreover, many patients described massage as a helpful strategy for managing chronic pain (Open). Several patients stated, however, that massage was too expensive for them to engage in this treatment regularly.

F: Just wishing that I could do stuff like massage and stuff (laughing). Massage therapy, because you know, I will like, you know rub on my legs just massage the muscles because it seems to be more in the muscles than anything else. But I don't have money for that. See that's, I'm on disability and social security. So I'm lucky if I have food in my house.

Table 14

*Selective, Axial and Open Categories for **Coping** with Chronic Pain*

Selective	Axial	Open
1. Social Support	1. Types of Positive Support	1. Confidant with Chronic Illness 2. Parent/Partner/Child 3. Religion 4. Alcoholics Anonymous 5. Pet 6. Therapist
	2. Messages- Family of Origin	1. Strong versus Weak 2. Asking for Help

2. Self-Management 1. Medication

1. Opioids
2. Antidepressants
3. Trial of Street Drugs
4. Medicinal Marijuana
5. NSAIDS
6. Alcohol
7. Addiction

2. Non-Medication

1. Heat
 2. Addiction/Side Effects- Fears
 3. Activities/Distracton
 4. Pacing
 5. Increased Physical Activity
 6. Massage
 7. Cane or Brace
 8. Weight Management
-

Professional Treatment for Chronic Pain

(Selective) Physical Health

Physical health treatment (Axial) methods were tried by many participants. Out of the three participants that underwent a surgery for chronic pain, all stated that the surgeries were unsuccessful (Open). Injections were found to be helpful by two participants (Open) and physical therapy (Open) was found to be helpful by three participants (Open). Chiropractic treatment (Open) was tried by several patients. All but one participant who tried this treatment found that it made their chronic pain worse.

C: I have had two back surgeries and on-going medical issues due to the surgeries.

H: ...the epidural steroid injections have worked very well for me. Um, I get ‘em maybe two times a year, sometimes three if I’ve really been bad. But you’re

limited to three a year, so I usually try to reserve that third injection for if something really bad happens.

I: ...they are pain injections. I mean it with a really small needle so then it doesn't ever penetrate the rib cage or anything. It just goes into the muscles itself that need it and he marks it with an "x" before hand and so on so that he only hits the parts that are hurting. Which it really does help a lot and they last for 2, 3 weeks. So you know that helps a lot with my pain also.

D: ...and then she took me to this Chiropractor afterwards and he did insurance fraud on me. He took the curve the rest of the way out of my neck and f'd up my back even worse ...to get more money so I would have to see him longer and the insurance company. So I would cry afterwards. My mom is all, "You're going to hurt worse for a while afterwards and then you'll get better." And I never did, I got worse and worse and worse.

Most patients mentioned that they felt at some point in their treatment for chronic pain that physicians didn't listen to them (Open), suspecting that they were pill seeking (Open). They stated that these barriers were significant in them receiving sound and effective chronic pain treatment.

C: I understand that there are people who have drug seeking behaviors and they go to multiple doctors and hospitals to get medications, I understand that and I know that exists, but I truly believe that doctors have stopped listening to the patient. And especially somebody like me, who has a proven history of back surgeries, accidents, ya know? I've been seen constantly by the same doctors, ya know? I don't jump around... One time I told a doctor, at the emergency room, "I

don't even want drugs from you. I'm not looking for that. I'm hurting. I need you to figure out what is going on." And that was very frustrating because I don't want to be looked at like that...? And I understand that that is something that they're kind of being taught to watch out for, but they're no longer talking to the patient like they are a patient, like they actually have a problem. Ya know? They talk to the patient like they're a drug user.

I: Some physicians haven't really responded to it (pain) hardly at all and have thought that I was drug seeking and so on...

Many patients stated that they experienced greater success and overcame these barriers in their relationships with physicians when they could be strong and assertive in their conversations with them (Open).

B: I think just the biggest thing is getting doctors to realize that not everybody is after pain medication. Not everybody is, you know, coming to the doctor because, 'well, I stubbed my toe and now I need Vicodin.' There are people out there that are in real pain... So it's that kind of stuff, of actually getting down to the source of what's really wrong and, and a lot of times I walk into the doctor's office and they're like, 'oh, you're just here for pain, so go away.'

B: So, I think that's a big part, is speaking up for myself, and being willing to speak up for myself and say what's going on. And then also being willing to not say, 'hey, um, I'm really am in pain, this is what's going on.' So just sharing that...

(Selective) Mental Health

Four out of ten participants were in individual counseling treatment (Axial) for chronic pain. These four participants reported that counseling was helpful and was a significant part of their management and treatment for chronic pain (Open). All four participants engaged in therapy reported that their relationships with their therapists were strong (Axial) and that their therapists listened to their concerns (Open).

B: Yes, so, yeah, that has helped. It has definitely, to have an outside perspective, somebody that is willing to talk to me about it and say, ‘okay,’ you know, ‘how are you dealing with this?’

I: Well I think that counseling treatment is a big part of it. That without counseling treatment you really don’t understand a lot of what’s going on and you can’t get a lot of the concerns that you have off of your chest. Because a lot of times doctors don’t have time to listen to you.

The remaining participants had not considered counseling therapy as an option for the management and treatment for chronic pain (Open).

Table 15

*Selective, Axial and Open Categories for **Professional Treatment** for Chronic Pain*

Selective	Axial	Open
1. Physical Health	1. Physical Health Treatments	1. Injections and PT helpful 2. Surgeries unsuccessful 3. Chiropractic Txt unhelpful
	2. Relationship with Providers	1. Physicians don’t listen 2. Healthy assertion 3. Pill Seeking
2. Mental Health	1. Counseling Treatment	1. Psychotherapy is helpful 2. Psychotherapy is helpful?

Nature of Chronic Pain

(Selective) Experience of Chronic Pain

Participants displayed varied experiences of chronic pain including the origin (Axial), pain sites (Axial), diagnoses and longevity (Axial). Seven out of ten participants had a clear onset to their experience of pain; for example, an acute injury as a result of a specific accident that developed into a chronic condition. These patients found their diagnoses for chronic pain satisfying (Open). However, patients without clear knowledge of the reasoning for their pain or the onset of their pain experience were concerned about receiving an accurate diagnosis of chronic pain and felt unsettled with their associated diagnoses (Open). These three out of ten participants without a clear onset of chronic pain were diagnosed with fibromyalgia. These patients described their diagnosis of fibromyalgia as a “catch all” diagnosis and asserted that they were unsure if this was their accurate diagnosis.

F: They diagnosed, okay so they checked me for RA any other kinds of arthritis and they ruled arthritis out. So then, they put me under the umbrella, you know, of um, fibromyalgia. Because they didn't know what else it was, they didn't really pursue, you know, that's something I brought up today with the doctors that they didn't send me to a neurologist. She's going to, you know, so... all they did was send me to a... the arthritis specialist. And then she's the one that ruled it out and said fibromyalgia. So yeah, and it got dropped and my legs have gotten progressively worse since then.

B: It's just figuring out is this from the fibromyalgia, is this because of the Celiac, is this, you know? That's I guess, what I keep looking at, is what is ultimately causing all this pain? Is it an overall one thing, or is it multiple things? And so just trying to figure out... And then you go to the physical therapist or go to the back doctor and they're saying, 'there's nothing wrong with your back.' Well then why am I in so much pain? And I think that's the most frustrating is every doctor I go to is saying, 'there's nothing wrong with you.' Well then I wouldn't be in pain if there really wasn't nothing wrong with me. So, you know, I wonder, am I being really weak because I'm in all this pain and people are feeling like I shouldn't be in all this pain.

Four participants had multiple pain sites. All four of these participants had either a history of alcoholism or a chronic illness (Open). The longer the longevity of chronic pain, the more likely the participant was prescribed an opioid medication for chronic pain (Open). Four out of five participants prescribed opioids for chronic pain experienced chronic pain for ten years or more. Two out of five participants not prescribed opioids for chronic pain experienced chronic pain for ten years or more. These two participants not prescribed opioids with a longer longevity of chronic pain were prescribed antidepressants for chronic pain.

(Selective) Relationship with Chronic Pain

Participants described varied relationships with chronic pain including descriptions of chronic pain (Axial) and associated mood (Axial). Participants who developed chronic pain out of a traumatic injury such as a domestic violence incident or a motor vehicle accident, or had a significant substance abuse history, tended to describe

their pain in more vivid, violent descriptions (Open). Participants who did not experience co-morbid trauma with the onset of their pain experience and denied a history of drug or alcohol abuse described their experience of pain with descriptors of a non-violent nature (Open).

A: I've had domestic violence, let's put it that way. Um, I was kicked in the leg by a Mexi, you know those cowboy boots... Um, on this leg I had a boyfriend again stab me in the leg with a screwdriver. And I've been beaten down. Um he smashed a full can of beer on my forehead twice.

Later during the interview this participant described her experience of chronic pain as:

A: Um, on my leg it feels like their sticking a bunch of needles in there or sometimes it feels like you are sticking a knife in there and just twisting it. My back feels like somebody is kicking me. I feel heat sensation coming from my leg depending on how bad it hurts. My shoulders... it just feels like somebody just tied me up to something and it is just stretching me. The headaches, it's like the plague, like somebody is just sticking something in there and running right through my eyes and across. Yeah.

C: It was primarily the car accident. Overall, probably it has happened from the last twenty years I have been in 7 car accidents...

Later on she described her experience of pain as:

C: The pain in my neck is like a squeezing, like somebody is squeezing it except I get really bad headaches. So it feels like somebody is squeezing my neck and, ya know, when your blood is pumping in that heart beat type feeling.

Several participants described their experience of chronic pain with non-violent descriptors.

F: ...it slowly started out with a little bit of pain in my knees, and just my legs in general when I overworked them. They would start... the muscles would start feeling weak and my legs would ache. And um, it just progressed from there so that now my legs ache every single day all the time, and it's just a very dull, low level. So I block it out. I don't pay much attention to it. But I've noticed, the more I work my legs, the worse it is. I can't do things like I used to. I can't crouch down or anything because my legs will start going numb and I'll get the stabbing pains. So it's mostly achiness, stabbing pains, weakness, that kind of thing.

H: ...it varies. I have the kind of chronic thing that is just...um, a deep ache that is all over from the fibromyalgia, they're telling me from fibromyalgia or whatever. Um, I have...a nagging pain that's in the lower back, all the time. And then I have...um, intermittent sciatica pain, which is sharp pain that goes down my leg usually only to my knees but sometimes all the way to my toes.

Almost all participants reported that their experience of pain increased symptoms of depression (Open) and irritability (Open).

C: My pain definitely impacts my mood because I am usually pretty mellow and ya know, not like high-strong and overbearing or anything, but once my pain starts and start feeling really uncomfortable, I have no patience. No patience at all and I'm quick to lash out at somebody and, um, quick to respond in a negative

fashion to anything, ya know, that may not have even come to me negative [mm], but it will go out negative... Yeah because, um, for example I got really upset some lady the other day, then threw an ash tray at her.

I: I don't think anybody who is in constant pain wouldn't get depressed.

Additionally, all participants stated that feeling stressed (Open) increased their level of pain. Outside of recognizing that stress increased their level of pain, only a few participants recognized that negative mood, either depression or anger, increased their experience of pain.

F: I've already made those connections that, you know, trying to um, take care of the emotional stuff. I mean, because mind-body connection, you know. I know that those affect, and when I do get upset, it can, it makes everything worse, of course. So if you have pain going on in your body on a low level at all times that level's gonna raise up under stress. And that just makes sense to me, so... keeping stress levels low is a biggie.

H: When my mood is worse, I notice that it's harder not to focus on the pain. And that makes it worse, because when you focus on the pain it's like giving it energy and it just gets worse... when you're depressed I think you tend to focus more on the pain and it's also harder to get yourself to go do stuff that would maybe help you feel better.

All but two participants felt that they were aging faster or feeling much older due to their experience of chronic pain (Open).

B: And so then I feel like, gosh I'm 35-years-old and I feel like I'm 80 some days.

D: She's like, "You're such an old lady already mom." (Laughter). I'm like, "Tell me about it. I feel like I am 80 years old or something."

Table 16

Selective, Axial and Open Categories for the Nature of Chronic Pain

Selective	Axial	Open
1. Experience of Chronic Pain	1. Origin	1. Clear Onset/Diagnosis 2. No Clear Onset/Fibromyalgia
	2. Multiple Sites	1. Co-morbid Illness/ETOH
	3. Longevity	1. 10 yrs, likely uses opioids
2. Relationship w/ Chronic Pain	1. Pain Description	1. Violent- trauma/sub use 2. Non-Violent
	2. Mood	1. Pain increases irritability 2. Pain increases depression 3. Stress increases pain 4. Pain makes you feel older

Saturation of Themes and Categories

The previously detailed open, axial, and core categories were derived during the data collection and finalized after saturation was reached. In grounded theory methodology, data collection ceases when additional interviews do not produce any new categories or codes and no new characteristics of the existing codes are elicited (Glaser & Strauss, 1967). When saturation is achieved, the researcher can discontinue further interviews and focus on defining the emerging theory with the data that have been obtained.

In this study, saturation was believed to be achieved after nine interviews. As an example, one theme which was prevalent in several of the earlier interviews which was

also reflected by Participant 9 was in the area of having to taking pain medication to function and fulfill life responsibilities. This participant reported that he used to feel ashamed about being on opioid medication. However, due to his success with increasing physical activity, engaging in hobbies and helping his family, he began to accept that he needed the assistance of opioid medication and didn't feel shameful about taking it anymore. In addition, he mentioned the importance of physical exercise in managing chronic pain. Participant 5 shared similar responses about having to take pain medication for years to manage chronic pain and noticing that he has been able to accept that the medication helps him function at a higher level and not to be sedentary. In addition, both of these participants mentioned the importance of exercise as a means of coping with chronic pain.

9/ I: And I do exercise a lot because I know that if I just sit there and don't move and so on, that I stiffen up and things like that and that if I walk, it makes my serotonin levels in my brain go higher and it does help with the um, oh it's like a type, endorphin, that it's a natural type of morphine that, you know, it can ascend to higher levels and so on. So, I know that helps, you know?... And I exercise as much as I can because I don't want anything to atrophy.

5/E : Well, I mean the Percocet's, you know, like immediate, you know what I mean. You know, if you're hurting and you want it to stop within the next half an hour, sure. You know? But uh, you know, probably exercising. I mean it hurts when you exercise, but you feel better later. I do anyway, you know.

A few other examples of areas in which saturation was observed, occurred when Participant 9 spoke about his acknowledgement that pain can cause depression, that

counseling has been helpful in his treatment of chronic pain, that physicians viewed him as drug seeking, that he enjoyed pleasurable activities despite pain, and that his family, dog and faith in God were positive social supports. All of these themes and ideas had been mentioned by previous participants. In comparing the transcript of responses from Participant 9 to several other interviews, no new categories or themes were introduced.

In order to ensure that saturation was achieved, the primary researcher completed one additional interview. This final participant, Participant 10, also had similar responses to the previous participants' responses and did not give any responses which led to the creation of new codes or categories. The responses of Participant 10 also yielded similar responses to Participant 9 in several areas. For example, in speaking about increased exercise to help manage chronic pain, Participant 10 stated:

The only thing that I really do is try to walk. You know, I can't really, I can't run because I run out of breath and I have the inhaler that I use too... I've been trying to lose a lot of weight and that's one of my important things right now, to lose weight. Cause I was over 300 lbs. I weigh 276 now.

Participant 10 disclosed that weight management was a goal of his not only for pain management but also for diabetes management. Additional responses that Participant 10 shared that were similar to Participant 9 were how he felt that he was viewed negatively for being on pain medication but felt it was necessary, that antidepressants and counseling were beneficial for pain management, that he enjoyed pleasurable activities despite pain, that stress affected his levels of pain and that pain caused irritability, and that his family were his main supports.

10/J: Just really that I'm on pain pills. I have to take them because that is the only way that I can cope with this pain and just hope that my health gets better. You know? ...I just take them because I need them. It helps my pain a lot. Without them I wouldn't, I would constantly be in pain.

10/J: ...but other times you could feel that, you know, that the meds are helping the pain or just stopping the thoughts, what's going through you mind. You know, it's not really that painful. That you are thinking about the pain, but it's just, but when I'm off the meds it's just like pain all the time.

Moreover, even when probed, Participant 10 did not give any responses which were novel. Therefore, saturation was determined to be achieved and the remaining data were analyzed to determine its relationship to the previously collected data, themes, and codes in order to complete the emerging theory.

The Balanced Scale Image

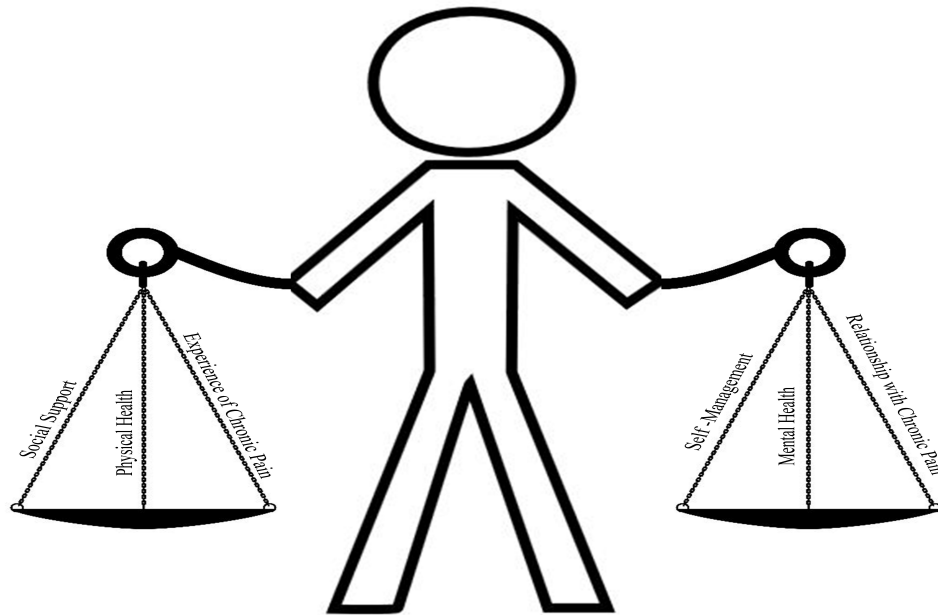
The 43 open, 9 axial, and 5 selective qualitative categories described above produced a descriptive image of non-cancer chronic pain patients' ability to manage their chronic pain while living the fullest and most balanced life as possible. The experience of managing chronic pain is extremely complex, influenced by many factors regarding the nature of chronic pain, physical and mental health professional treatment for chronic pain, and coping strategies for chronic pain. The relationship between these categories is reflected in the image of the balanced scale (see Figure 1.).

Within the image, the selective categories are juxtaposed elements to keeping the scale, or the participant's body balanced. These selective categories are shown

juxtaposed, helping the person manage chronic pain effectively. If these elements are weighted heavily one way more than another, challenges may arise that thus “tip the scale” and create more problems managing chronic pain. Issues that may arise when the pain scale is unbalanced may include: depression, addiction, dependence on a provider, fear of providers, lack of trust in others, isolation, a sedentary lifestyle, obesity etc. On the exact opposing side of the scale is the corresponding selective code from the same domain category. For example, social support and self-management are opposing on the figure. Thus, if a chronic pain patient is heavily dependent on social support, he or she may then become less focused on the importance of self-management strategies for coping with pain and thus, tip the scale. Additionally, if a chronic pain patient utilizes physical health treatment more heavily than mental health treatment, or vice a versa, that patient may become more focused on one element of functioning over the other and miss opportunities to have more balanced, healthier pain management, and thus, tip the scale. Moreover, relationship with chronic pain and experience of chronic pain are juxtaposed. Seemingly when chronic pain patients focus heavily on their experience of chronic pain, such as diagnosis, sensations, and pain sites, they are less likely to become aware of their relationship with chronic pain and how stress and mood states affect their level of chronic pain. Keeping the juxtaposed elements balanced assists chronic pain patients in more effectively managing their experience of chronic pain, receiving the best treatment possible and functioning at their highest level possible.

Figure 1

Relationship between Categories



Summary of Qualitative Results

Participants identified several key influences in their management of chronic pain. First, participants' nature of their chronic pain experience, including onset, pain sites, diagnoses, longevity, description of sensations, associated mood, and ability to recognize stress and how this impacts their level of pain, contributed to their descriptions of their satisfaction with treatment and the management of chronic pain. Patients reported they were content with their diagnoses and treatment of chronic pain when there was a clear onset to the origin of their pain experience. This clear onset seemingly contributed to a clearer understanding of treatment and patient satisfaction of the treatment as compared

to pain patients who were unclear about the onset and ambivalent about their chronic pain diagnoses. Additionally, participants who experienced pain in multiple pain areas were more likely to have a co-morbid chronic health condition or to have had a drug/alcohol history. Participants suffering from chronic pain for ten years or more were more likely prescribed opioids for chronic pain. Participants who experienced trauma in conjunction with their onset of chronic pain, or who reported a significant drug/alcohol history, described their experience of pain with more violent descriptors. Moreover, all participants recognized that pain caused greater irritability and depression and all participants recognized that stress increased their experience of pain. Alternatively, only a few participants reported a connection between negative mood and greater severity of chronic pain.

Second, participants' professional treatment for chronic pain influenced their ability to manage their chronic pain effectively. Patients tried varying physical health treatments for chronic pain including surgeries, injections, chiropractic treatment, physical therapy and massage. Participants found surgery unhelpful and injections and physical therapy helpful. Participants felt that their primary care doctors, had at times, been poor listeners and viewed them as drug seeking. Participants felt that learning to assert their needs and "speak up" for themselves with physicians assisted them in receiving more sound treatment. Several participants were in mental health treatment for chronic pain. All of these patients found psychotherapy to be a significant aspect to their management of chronic pain. These participants found that therapists listened well to their struggles and found this helpful.

Finally, all participants reported that social support was a positive coping strategy for chronic pain and all participants described varying attempts at self-management strategies for coping with chronic pain. The most preferred social support was a friend or family member who also suffered from a chronic condition and almost all participants received positive support from family. Several mentioned that they received positive support from God/faith, from a pet, from a therapist and from a relapse prevention group such as Alcoholics Anonymous. Almost all participants discussed familial messages and influences from a young age impacting their beliefs about coping with chronic pain and how to utilize social support for chronic pain. The most common familial message was the importance of being portrayed as strong versus weak. In addition, in relation to this, participants often felt uncomfortable asking for help due to their belief of the importance of being portrayed as strong and as someone who others can rely on. Moreover, societal gender influences seemingly impacted male chronic pain patients' pain behaviors, beliefs about what was an appropriate "manly" expression of pain was, and increased feelings of shame around having pain.

Participants utilized medication and non-medication means of self-managing their chronic pain conditions. Half of the participants' utilized opioid medication for the treatment of chronic pain and at some point in treatment felt guilty or ashamed for having to take opioids for pain. However, several patients expressed acceptance around having to take pain medication and expressed clearly how it increased their ability to function at work, at home, and in relationships. Several patients prescribed opioids for many years, recognized that they were now addicted to opioid medication. Participants not prescribed or taking opioids for chronic pain described fear around taking these medications and

mentioned fears around side effects that could result from taking these medications. Many participants tried street drugs and alcohol for coping with chronic pain but found these treatments unhelpful. The few participants prescribed and taking antidepressants for chronic pain management found these medications helpful. The few participants using medicinal marijuana for chronic pain, found cannabis to be helpful in managing chronic pain. Heat was the most effective localized treatment for chronic pain and the pacing of activities, increased physical exercise, weight management, the use of a cane or brace, and pleasurable activities, as a use of distraction, were the most effective self-management strategies for chronic pain. Massage was the most common alternative treatment for chronic pain that was beneficial for patients. However, most participants could not afford on-going massage therapy.

Integrative Findings

Table 17 displays the total scores of participants' measures from the quantitative findings. A few trends were found when integrating the data. Higher scores on the pain-self efficacy questionnaire (PSE-Q), a measure of chronic pain patients' confidence to perform tasks despite pain, were associated with lower scores of depression as measured by the patient health questionnaire (PHQ-9). For example, participants D, E, F and I reported sub-threshold symptoms of depression and reported high levels of pain self-efficacy. Correspondingly, participant H reported the highest levels of depression as compared to other qualitative participants including suicidal ideation and also reported the lowest pain-self efficacy on the (PSE-Q) as compared to other qualitative participants. The evidence from previous research on pain self-efficacy suggests that clients with persisting pain scoring 40 or above on the PSE-Q are likely to sustain or build on their

functional gains (Nicholas, 2007). Alternatively, low pain self-efficacy has been found to be a predictor of people being at risk of long-term disability and depression (Arnstein et al., 1999).

Interestingly, in the multiple hierarchical regression analyses from Hypotheses 3, level of pain self-efficacy and level of depression were statistically significant predictors for the group of patients already prescribed opioids to be at risk of aberrant drug-related behavior. Participant A and Participant E demonstrated evidence of this phenomenon. Participant A had the highest score on the outcome measure (the COMM, measuring the risk for aberrant drug-related behavior in patients taking opioids for chronic pain) as compared to all other qualitative participants and reported moderate symptoms of depression on the PHQ-9 and low pain-self efficacy on the PSE-Q. Moreover, Participant E had the lowest score on the outcome measure (the COMM) as compared to other qualitative participants and reported no symptoms of depression and had high pain self-efficacy. In addition, Participant E had the lowest level of depression, lowest level of risk for aberrant drug-related behavior, and the highest score on the Social Provisions Scale, a measure of a patients' perceived social support, as compared to the other qualitative participants in this study.

Four out of the top five participant scores for perceived social support as measured by the Social Provisions Scale were associated with the lowest participant scores on depression. Research suggests that high levels of social support are associated with lower levels of reported symptoms of depression (Barrera, 2000; Berkman & Glass, 2000; Cutrona & Russell, 1987; Israel & Schurman, 1990; Weinert & Tilden, 1990; Yang & Clum, 1995). Levels of severity of depression in both males and females have also

been associated with social support (Rizwan & Syed, 2010; Zlotnick, Shea, Pilkonis, Elkin, & Ryan, 1996).

All participants on opioids but one, participant E, were at risk for aberrant drug-related behavior based on their total outcome scores on the COMM. The cutoff score for the COMM is a score of 9. All participants not on opioids but one, participant B, were at risk for opioid misuse based on their total outcome scores on the SOAPP®-R. The cutoff score on the SOAPP®-R is 22.

The statistically significant predictors found for the hierarchical multiple regression, for participants not already prescribed opioids (level of depression, level of social support and level of ethnic identity) were not corroborated in the qualitative subset of the larger quantitative sample. Correspondingly, the only statistically significant predictor for distinguishing whether participants were prescribed opioids or not (level of pain self-efficacy) was not found in this smaller subset of participants.

Overall, level of social support, level of depression, and level of pain self-efficacy seemed to be the strongest predictors in statistical analyses and influences on coping in qualitative analysis. All participants offered examples of the importance of social support, how mood and stress impacted their level of pain, and how pacing and/or increasing activities and behavioral activation were important despite pain. Participants who mentioned the importance of physical activity and pleasurable activities despite pain thus displayed some level of pain self-efficacy. Ethnic identity was a significant predictor in participants not already prescribed opioids but was not significant in qualitative findings. In addition, significant predictors for aberrant drug-related behavior were not found in the qualitative sample, thus these findings cannot directly add to the

statistical predictors found. Participants interviewed for the qualitative portion of this study were asked open-ended questions to gain a comprehensive understanding of their primary means for the management of chronic pain and its contributing factors.

Table 17

Participant Results on Quantitative Measures

<u>Part.</u>	<u>Age</u>	<u>Sex</u>	<u>PHQ-9</u>	<u>SPQ</u>	<u>PSE-Q</u>	<u>MEIM-R</u>	<u>SOAPP-R</u>
<u>COMM</u>							
A	41	F	13	61 (N, G, RA)	21	34	35
B	36	F	17	62 (G, N, SI)	29	27	17
C	44	F	13	86 (G, RA, N, A)	29	23	18
D	41	F	4	77 (RA, RW, SI)	44	38	32
E	51	M	0	94 (RA, N, A, SI)	50	40	8
F	55	F	8	87 (G, A, SI)	51	37	24
G	54	M	4	55 (RA, N, G)	14	32	29
H	43	F	22 (SI)	66 (RA, A, SI)	7	32	15
I	46	M	8	87 (RA, A, G)	44	40	28
J	55	M	11	68 (RA, G, A, N)	48	34	10

The highest rated perceived social support subscale provisions were listed for each participant. The six perceived social support provisions include Guidance (advice or information; G), Reliable Alliance (assurance that others can be counted on in times of stress; RA), Reassurance of Worth (recognition of one's competence; RW), Attachment (emotional closeness; A), Social Integration (a sense of belonging to a group of friends; SI), and Opportunity for Nurturance (providing assistance to others; N; Rizwan & Syed, 2010; Weiss, 1974).

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

In this chapter, the research problem is reviewed, the methodology is summarized, and the findings are integrated and discussed within the context of the current research in the field. The quantitative and qualitative findings are compared to findings in the present literature. Subsequently, aspects of how these findings lend support to previous research, refute previous studies, or present evidence for new theories are discussed. The chapter concludes with limitations, researcher reflections, future implications, and conclusions of the present study.

Overview

As aforementioned, Turk and colleagues (2008) highlighted a plea for further research on predictors of aberrant drug-related behavior in CNCP patients (Gatchel, 2001). Few studies have examined predictors of aberrant drug-related behavior in chronic pain populations (Passik & Kirsh, 2003). Researchers have suggested that the majority of research conducted in this area has been based on retrospective chart reviews and cross-sectional data, and that large-scale, prospective studies are needed (Turk, Swanson, & Gatchel, 2008). In addition, they suggested that future studies should carefully define the criteria that are used to permit replication and comparison with other

studies and that the population used must be clearly articulated to permit determination of the representativeness of the sample and generalizability of results. Moreover, no studies examine solely new referrals to pain clinics or patients who were not already taking opioids. The current study included participants both on opioids and those who were not at a large, diverse, federally funded clinic. The participants included both old and new referrals, male and female, and White and Hispanic individuals across the lifespan. Thus, the results may extend to a relatively broad sample.

This was the first study of its kind to assess the role of self-efficacy of pain, severity of depressive symptoms, perceived social support, and ethnic identity as predictors of the risk of aberrant drug-related behaviors in CNCP patients. In addition, it was the first study to explore these variables with the support of quantitative and qualitative methods. Mixed methods provide a better understanding of a research problem by combining numeric results with specific details from qualitative data (Brewer & Hunter, 1989; Hanson, Creswell, Plano Clark, Petska & Creswell, 2005; Tashakkori & Teddlie, 1998). Collecting and integrating both quantitative and qualitative data further enriched results in ways that one form of data collection does not allow. Additionally, mixed methods designs convey the needs of individuals or groups of individuals who are marginalized or underrepresented (Mertens, 2003; Newman & Benz, 1998).

Quantitative and qualitative data were collected and analyzed separately and then compared and contrasted. The interview data were used to corroborate, refute, or augment findings found from the survey data. Qualitative research questions were employed to gain further comprehension of what drug-related aberrant behavior in CNCP patients encompasses in comparison to low risk populations, amongst those already on

opioid treatment and those who were not. The aim of the study was to learn more about chronic pain patients' experiences, expectations of pain management, expectations of the use of opioids, and coping skills for chronic pain in the two groups.

Discussion of Quantitative Results

As noted earlier in this paper, it is urgent to learn how to select CNCP patients for opioid therapy who are likely to achieve improvement in pain, function, and quality of life, without interference from addiction (Ballayntyne, 2006). Experts advocate the use of opioid therapy but in carefully selected patients (Kalso, Edwards, Moore et al., 2004; Katz & Fanciullo, 2002; Zancy, Bigelow, Compton, et al., 2003). The medical community aims to learn of common predictors of aberrant drug-related behaviors and utilize this knowledge through the adequate screening for these predictors in CNCP patients (Friedman, Li & Mehrotr, 2003; Turk, Swanson, & Gatchel, 2008). The knowledge gained about common predictors will assist providers in more effectively selecting individuals that will most benefit from opioid therapy and consequently instill comprehensive non-opioid therapy management to those most at risk for displaying aberrant drug-related behaviors in the CNCP population. If providers can predict those patients who will be most at risk, efficacious changes in chronic pain management could be initiated and fewer patients potentially at risk for addiction.

Hypothesis One of this study determined whether Group A (CNCP patients prescribed opioids) and Group B (CNCP patients not prescribed opioids) were significantly differentiated when gender, age, ethnicity, level of education, perceived social support, self-efficacy of pain, depression, and level of ethnic identity were used as predictors. The results from the hierarchical logistic regression analysis found that

participants' level of pain self-efficacy was the only individual predictor that distinguished whether participants were prescribed opioids or not. Low pain self-efficacy is characterized by a feeling that pain is uncontrollable and unmanageable, given the physical demands of daily life (Linton & Shaw, 2011). Chronic pain patients not prescribed opioids for chronic pain were .12 times more likely to have a moderate score on the pain self-efficacy questionnaire than chronic pain patients already taking opioids. However, extreme values on the measure were not predictive, indicating that the relationship between pain self-efficacy and group was complex. Furthermore, .12 is a minimal differentiation between the two groups. These findings suggest that chronic pain patients' not taking opioids for chronic pain have moderate confidence in successfully engaging in activities despite pain, and in successfully managing their chronic pain. Chronic pain patients on opioids, may have extremely high or low levels of pain self-efficacy but not moderate levels.

Perhaps chronic pain patients not prescribed opioids are reporting moderate levels of pain self-efficacy and an ability to do more despite pain because their co-morbid mood symptoms are better managed. Chronic pain patients commonly experience co-morbid symptoms of depression and anxiety. Many chronic pain patients may request opioids to avoid or relieve mental health symptoms as well as attempting to reduce physical pain. Physicians typically have chronic pain patients rate their level of chronic pain and utilize these subjective reports to assess whether prescribing opioid medication is indicated. However, how accurate are these self-reports, and are pain suffering and co-morbid mental health symptoms being included in these subjective pain scale self-ratings? Moreover, long-term opioid use can result in hyperalgesia (an increased experience of

pain), side effects (constipation, sleep disturbance, hormone and immune system abnormalities), tolerance, physical dependence, and addiction. These side-effects most likely affect the chronic pain patient's level of pain self-efficacy, mood symptoms, and level of functioning. Hence, chronic pain patients who reported extremely low levels of pain self-efficacy who were on opioids may have poorly managed mood symptoms. Moreover, chronic pain patients on opioids who reported extremely high levels of pain self-efficacy may be displaying an addiction or dependence on pain medication.

Are opioids causing a decrease in functioning among chronic pain patients as well as a decrease in their ability to do activities despite pain over time? Are opioids causing chronic pain patients to become more disabled with long-term use? These questions would be interesting to evaluate in detail in future research and are pertinent to the current opioid epidemic. These questions were similarly posed in a recent article in *Psychology Today* written by Dr. Mel Pohl, a psychiatrist, entitled, *Opioids Don't Always Make Chronic Pain Better (They May Make it Worse): an Opioid-Free Way of Treating Chronic Pain* on June 15, 2012. Moreover, many randomized clinical trials (RCT's) on opioid efficacy for chronic pain patients have been conducted since the early 1990s. However, because RCTs cannot be conducted over prolonged periods of time, this methodology is not useful for assessing long-term effects of the treatment. Open-label follow-up studies in association with some RCTs have provided some insight into longer-term opioid utility (Kalso, Edwards, Moore et al., 2004; Moore & McQuay, 2005). These studies have reported satisfactory analgesia for all patients who stay on the treatment. Reviews of the open-label follow-up studies, however, have shown that up to

56% of patients abandon the treatment because of lack of analgesic efficacy or side effects (Kalso, Edwards, Moore et al., 2004; Furlan, Sandoval, & Mailis-Gagnon, 2006).

Hypothesis Two of this study examined if gender, ethnicity and the interaction between gender and ethnicity would be significant predictors of aberrant drug-related behaviors (positive screening on the COMM in Group A) or high risk of opioid misuse (high results on the SOAPP®-R in Group B). The two-way ANOVA found nonsignificant effects of sex, ethnicity, and the interaction between sex and ethnicity for Group A and Group B. Given that there were no differences between sex, and between White or Hispanic populations, all statistical findings within this study are found generalizable amongst these populations given the criteria for sample selection. While other ethnically diverse patients were collected, there were not enough patients within each of these subgroup samples to be included in the full sample and data analysis. However, these results may still generalize to a fairly broad population.

Hypothesis Three was the main focus of this study. It was hypothesized that after controlling for contributions of demographic variables (age, gender, ethnicity, and level of education), perceived social support, self-efficacy of pain, depression, and level of ethnic identity would be significant predictors of aberrant drug-related behaviors (positive screening on the COMM in Group A) or high risk of opioid misuse (high results on the SOAPP®-R in Group B). Results from the hierarchical multiple regression indicated that two predictor variables (level of depression and level of pain self-efficacy) in participants on opioids, and three predictor variables (level of depression, level of perceived social support, and level of ethnic identity) in participants not prescribed opioids, contributed significantly to the explanation of patients being at risk for aberrant

drug-related behavior. The more severe the symptoms of depression, the more likely chronic pain patients were at risk for aberrant drug-related behavior. This finding was significant for both groups of patients, both those already taking opioids and those not taking opioids.

This finding provides significant clinical screening implications and is aligned with recent literature. Chronic pain patients diagnosed with major depression and other psychiatric disorders have been found to be more likely than their counterparts to initiate and continue opioid therapy (Sullivan, Edlund, Zhanf, Unutzer, & Wells, 2006) and to more likely misuse medication (Edlund, Steffick, Hudson, Harris, Sullivan & Rick, 2007; Wasan, Butler, Budman, & Benoit, 2007). In addition, these individuals are less likely to experience analgesic benefits from opioid therapy (Wasan, Davar & Jamison, 2005). Manchikanti and colleagues (2007) found from an assessment of 500 CNCP patients prescribed and receiving stable doses of opioids, that drug abuse was significantly higher in patients with depression as compared to patients without depression (12% with depression versus 5% without). The patients were evaluated for psychopathology, opioid abuse, and illicit drug use during the course of regular pain management treatment. Turk, Swanson, and Gatchel (2008), after conducting a thorough review of the existing literature available on the risk for opioid misuse, found that a history of polysubstance abuse, presence of a mood disorder (especially unipolar depression), younger age, and a history of legal problems were the most significant predictors. In addition, Sullivan and fellow researchers (2006) found from a meta-analytic review that CNCP patients carrying a mental health diagnosis of major depression, dysthymia, generalized anxiety disorder or

panic disorder in 1998 were more likely to report opioid use in 2001 than CNCP patients not carrying one of these diagnoses.

It is of great importance for providers to assess for depressive symptoms at the onset of the treatment for chronic pain and ongoing throughout pain management, since severity of depression is a strong risk factor for the likelihood of aberrant drug-related behavior. Prior to treatment decision-making, between provider and chronic pain patient, an assessment for depression and a discussion around the management of depressive symptoms should be initiated. This strong risk factor should be communicated with pain patients. Providers should be cautious about prescribing opioid medication for chronic pain for patients with severe depressive symptoms, or, if considering prescribing opioids, depressive symptoms should be treated with concurrent psychotherapy and antidepressant medication (the gold standard for depression treatment).

In addition to higher levels of reported depression, participants not already prescribed opioids were found to be at risk for aberrant drug-related behavior when they reported higher levels of ethnic identity and lower levels of perceived social support. These findings shed light on psychosocial elements of a chronic pain patient's functioning that are helpful to assess prior to opioid treatment. These three psychological variables, severe depression, low social support, and high ethnic identity, put a non-prescribed chronic pain patient at risk for aberrant-drug related behavior and potentially, abuse of these medications.

Higher levels of ethnic identity indicate that a person holds strongly to their cultural values and beliefs regardless of how these beliefs may affect health behaviors. Higher levels of ethnic identity suggest that cultural group norms take precedence over

mainstream cultures' beliefs. If one's culture supports unhealthy eating or that one must be strong at all times, these behaviors are often adopted automatically. The study of the association between ethnic identity and opioid use in CNCP patients is limited in present research. Wong and Longshore (2008) assessed the impact of ethnic identity spirituality, and self-efficacy on methadone treatment outcomes for heroin use among Hispanic Americans. Researchers found that greater levels of ethnic identity were related to a greater number of drugs used at one-year follow-up. In addition, James, Kim and Armijo (2000) assessed the impact of ethnic identity on drug use among ethnic minority adolescents. James, Kim and Armijo (2000) found that higher ethnic identity levels were associated with heavy drug use. These findings support the results found in the current study. These patients most likely are focused on their cultural group norms and are not seeking other non-medication means of coping outside of what is accepted by their cultural group. However, while the results of this study are synonymous with limited studies in the related ethnic identity literature, it is plausible that the significance of results found for high levels of ethnic identity in the non-prescribed group could be related to the ethnic identity variable capturing the significance and contribution of a latent variable.

In the present study, level of perceived support was a significant predictor of drug-related behavior in pain patients not already prescribed opioids. The study of the association between social support and opioid use in CNCP patients is minimal in present research. This predictive finding is a strong addition to the current literature. Lopez-Martinez and colleagues (2008) found that high levels of social support correlate with less pain and distress while solicitous attention from spouses regarding pain behavior

may actually increase pain interference. CNCP patients who reported more satisfaction with their social support network also reported lower levels of depression and less pain. Patients with satisfactory levels of social support were more likely to choose active coping strategies for dealing with their pain, such as trying to distract themselves by doing something pleasant, rather than passive strategies like complaining about their pain to others. Active coping strategies were also linked to lower levels of depressed mood and better functioning, while patients who coped with their pain passively tended to be more depressed and to have more severe pain (Lopez-Martinez et al., 2008).

Chronic pain patients not already prescribed opioids, with limited or poor social support, are more at risk for aberrant drug-related behavior. Prior to prescribing opioids for chronic pain patients, providers would benefit from assessing a chronic pain patient's perceived social support. If a pain patient's support is limited or poor, the patient could benefit from the provider making efforts to encourage the patient to increase supports. For example, providers could encourage these patients to build stronger relationships with family and friends and prioritize these patients for subsequent referrals for group therapy and other resources. Additionally, providers could utilize psychologists and mental health therapists to bolster chronic pain patients' social support, decrease their symptoms of depression, and provide psycho-education to preventively put these patients at less risk for aberrant drug-related behavior. Moreover, psychologists typically have more availability and time to monitor chronic pain patients in ways that primary care physicians working in a population-based model do not have, i.e., these psychologists could employ chronic pain groups at the clinic or health center or provide individual therapy for the most high risk patients.

Furthermore, in addition to higher levels of depression, participants already managing their chronic pain with the use of opioids were found to be at risk for opioid misuse when they reported higher levels of pain self-efficacy. These findings suggest that during the course of opioid treatment for chronic pain, patients may feel that they can confidently do things despite their experience of pain, but that these levels of confidence or pain self-efficacy can actually put chronic pain patients at risk for misuse. This may be related to an already potential dependence on opioid treatment for chronic pain and/or a potential addiction to opioid medication. In addition, this suggests that the use of pain self-efficacy as a screener for aberrant drug-related behavior would not be useful for physicians. Pain self-efficacy was not a significant predictor for aberrant drug-related behavior in chronic pain patients not prescribed opioids but was a positive predictor for opioid misuse in patients already on opioids.

While little research has been conducted in the area of pain self-efficacy as a predictor for aberrant drug-related behavior, the present findings refute existing literature. Wong and Longshore (2008) assessed the impact of ethnic identity spirituality and self-efficacy on methadone treatment outcomes for heroin use among Hispanic Americans. Researchers found that higher levels of self-efficacy reported at intake were related to increased odds of abstinence of heroin use and a lower number of drugs used at one-year follow-up. In addition, Warren, Stein & Grella (2007) assessed the role of social support and self-efficacy in treatment outcomes among patients with co-occurring substance abuse and psychiatric disorders in residential drug treatment programs. These researchers found that greater reports of self-efficacy predicted less alcohol and cocaine use. While these results differed from the present study's findings, they were not assessing outcomes

in chronic pain patients on opioid treatment, and thus, significantly different populations were being assessed.

Providers should be cautious in prescribing opioids and should be concerned about potential misuse and addiction in chronic pain patients. In addition, pain self-efficacy as a predictor alone is insufficient in predicting misuse or aberrant drug-related behavior in chronic pain patients. Self-efficacy beliefs have contributed to the development of self-management interventions for chronic pain that focus on teaching pain coping skills, educating patients about pain, and providing social support (Foster, Taylor, Eldridge, et al., 2007; Nicholas, Molloy, Tonkin, & Beeston, 2003). Enhancing self-efficacy is potentially helpful for chronic pain patients in both camps, those who are prescribed opioids and those who are not.

Discussion of Qualitative Results

After a review of the existing literature, three qualitative studies indeed found similar results. Crowe, Whitehead, Gagan and Avin (2010) found medication, exercise, and the application of heat to be the most common strategies used by participants to manage their chronic low back pain. The strategies reflected an active process of decision-making that combined personal experience with professional recommendations. Healthcare professionals who were invited by their pain patients to participate in this study were physiotherapists and general practitioners. Physiotherapists described increased exercise, preferably exercises aimed at increasing core strength, as the main strategy recommended to pain patients. In addition, general practitioners regarded themselves as primarily having three roles: prescription of pain medication, dispensing of

sickness certificates, and referral to specialists (Crowe, Whitehead, Gagan & Avin, 2010).

In the present study, chronic pain patients were similarly found to report that methods of heat were beneficial and a common strategy that was used. In addition, increasing physical activity and medication management benefited most participants in managing their experience of chronic pain. Moreover, participants in the present study did not find primary care physicians to be strong at listening to their concerns.

Participants felt that they were often viewed as pill seeking. The role that primary care physicians, or general practitioners play may be a more medication management role and referral source, as found by Crowe and colleagues (2010). Moreover, there may be mismatched expectations of treatment and management of chronic pain between that of the pain patient and the primary care provider. These mismatched expectations of treatment may increase pain patients' feelings that physicians are not listening to their concerns, that they are being viewed as pill seeking, and that they are not satisfied with their diagnoses and treatment.

A qualitative study conducted by Bair, Matthias, Nyland, Huffman, Stubbs, Kroenke, and Damush (2009) found barriers to pain self-management included: 1) lack of support from friends and family; 2) limited resources (e.g., transportation, financial); 3) depression; 4) ineffectiveness of pain-relief strategies; 5) time constraints and other life priorities; 6) avoiding activity because of fear of pain exacerbation; 7) lack of tailoring strategies to meet personal needs; 8) not being able to maintain the use of strategies after study completion; 9) physical limitations; and 10) difficult patient-physician interactions. Ways to improve pain self-management included: 1) the treatment and relief of

depression symptoms; 2) having support from family, friends, care managers, and coworkers (e.g., social support); 3) comparing one's pain with that of others (i.e., social comparison); 4) being a proactive patient; 5) having a positive attitude and using positive thinking/affirmations; 6) setting and achieving goals; and 7) having a menu of self-management strategies from which to choose. Interestingly, issues such as depression and social support were viewed as both barriers and facilitators. For example, untreated or suboptimal treatment of depression interfered with the use of self-management practices, whereas the effective treatment of depression facilitated their use. Likewise, lack of social support hindered patients' use of self-management strategies, whereas the presence of social support facilitated self-management (Bair, Matthias, Nyland, Huffman, Stubbs, Kroenke, & Damush, 2009).

Bair et al.'s (2009) qualitative findings bore many similarities to this present study's findings. The treatment and relief of depression, perceived social support, social influences, and healthy assertion were also major findings that influenced participants' ability to successfully manage chronic pain in the present study. Participants mentioned an awareness of how pain increases depressive symptoms and many patients were on antidepressants or in counseling treatment. All participants mentioned the importance of social support in their management of chronic pain and several mentioned how respectfully asserting their needs with physicians increased their satisfaction with the patient/physician relationship. Moreover, several participants in the present study described how societal gender influences and messages from childhood, influenced their coping strategies and ability to ask for help.

Moreover, Matthias, Parpart, Nyland, Huffman, Stubbs, Sargent, and Bair (2010) conducted a qualitative study with primary care physicians of chronic pain patients and found that these providers described numerous relational difficulties when caring for patients with pain. They described feeling pressure from patients to prescribe opioids, that they questioned the credibility of patients' pain reports, and worried about secondary gain and diversion. These challenges took a toll on the patient-provider relationship, leading to strained, even hostile interactions, and ultimately to provider frustration, stress, and burnout. Stress and burnout, in turn, can compromise effective patient care and reduce physicians' capacity to show empathy to patients (Banja, 2006; 2008; du Pre, 2005; Matthias, Parpart, Nyland, Huffman, Stubbs, Sargent, & Bair, 2010).

Chronic pain patients in the present study who were in mental health treatment stated that their therapists were strong listeners and that therapy was an important aspect to their treatment. Mental health providers are trained to provide empathy and actively listen, and thus, provide a different role in the chronic pain patients' treatment than that of the primary care physician. Empathy is an important ingredient in patient-centered care (Fiscella, Meldrum, Franks et. al, 2005; Mead & Bower, 2000; Tait, 2008) and has been recognized as essential when treating chronic pain (Banja, 2006; 2008; Gallagher, 2006; Tait; 2008). Empathic, patient-centered care is associated with better health outcomes (Banja, 2006; Di Blasi, Harkness, Ernst Georgiou & Kleijnen, 2001; Mead & Bower, 2000; Stewart, Brown, Donner et al, 2000; Tait, 2008; Tait & Chibnail, 1997). Research suggests that PCPs need interdisciplinary support beyond opioid prescribing (Franstve & Kerns, 2007; Sullivan, Leigh & Gastor, 2006; Turk & Okifuji, 1999). For example, since chronic pain and mental health conditions are often co-morbid (Bair,

Robinson, Katon & Kroenke, 2005) involving psychologists or other mental health professionals may help to alleviate some of the PCP's burden, as well as provide more comprehensive care to patients with these conditions. Another clear implication is that efforts to improve patient-centered care are needed and hold promise to improve pain care for both patients and providers (Matthias, Parpart, Nyland, Huffman, Stubbs, Sargent, & Bair, 2010).

Literature strongly acknowledges the importance of social support, mood management, empathic patient/provider encounters, localized heat remedies, healthy assertion, medication management and increased physical activity in successful management of chronic pain. This qualitative study added to these findings by uncovering several other influences on chronic pain patients. Results of this study indicated that chronic pain patients not prescribed opioids fear addiction and the side effects of opioids. Many chronic pain patients reported that cannabis assists in pain management and assists in distracting one's mind from the experience of pain. Antidepressants were found to be beneficial, as well as massage, physical therapy, and injections. The most beneficial social support reported was that of a friend or family member who also struggled with managing a chronic illness or chronic pain experience. Child, partner, religion, pet, therapist or relapse prevention group were the most common forms of efficacious social support. Chronic pain patients who were unclear about the onset of their pain experience were the most dissatisfied with treatment. The longer the experience of pain, the more likely the chronic pain patient was prescribed opioids. In addition, societal gender norms appeared to influence male pain patients' ways of coping

and feelings of shame. Moreover, messages regarding strong versus weak behaviors were learned from childhood and impacted chronic pain patients coping.

Conclusions from Qualitative Results

Clinical implications of these findings suggest that pain patients might benefit from chronic pain support groups, psycho-educational groups, antidepressant medication and individual therapy. Additionally, chronic pain patients could benefit from PCP's recommending an increase in exercise, heat remedies, physical therapy, injections, massage and mental health treatment for chronic pain, either in addition to medication management or before initiating opioid treatments for pain. Moreover, providers could benefit from operating in an integrated care model of treatment. Many primary care clinics around the U.S have adopted an integrated primary care model where physicians are supported by having psychologists' presently on-site provide consultation, support, assessment, diagnostic clarification, individual behavioral health treatment, and group psychotherapy treatment in caring for patients with chronic illness and chronic pain (Blount & Miller, 2009; Blount et al., 2007; McDaniel, Belar, Schroeder, Hargrove, & Freeman, 2002).

Limitations of the Present Study

Sample for Quantitative Data

A greater sample size for this study may have produced more significant results. Studies with a larger sample size would allow for more generalizable findings and potentially demonstrate stronger relationships between the constructs of depression, self-efficacy, perceived social support, and ethnic identity. The sample size for this study was also smaller than the primary researcher aimed for. The initial G*power analysis

required 170 participants total with at least 85 participants within each of the two groups to achieve a medium effect size and adequate power of 0.80 with four predictor variables. However, after collecting the present sample of 102, preliminary analyses were run and since some targeted findings were significant, quantitative data collection was discontinued.

While the primary researcher aimed to collect the most diverse sample possible, the predominant racial population compilations at this large community clinic were Caucasian and Hispanic and the demographics of the sample reflect this. In the future, a sample size with more cultural diversity may allow for better understanding of how these constructs impact other ethnic and racial cultures. However, this study was moderately diverse across gender, age, marital status, and education. The majority of participants were unemployed, receiving disability funds or applying for disability, or a student or retired. Many fewer participants were working full-time or part-time. The majority of participants in this study were from lower socio-economic groups.

Both Spanish speaking and English speaking Hispanic pain patients were recruited and included in this study. The primary researcher aimed to include more Spanish speaking patients than were recruited. These patients appeared to be not interested in participating in this study, or upon reviewing the number of measures, decided against participation. Given the primary researcher's limitation of speaking English only, measures could not be read to patients who may have had challenges with reading and writing. In the future when collecting data from Spanish speaking migrant workers, having measures translated in Spanish alone is not sufficient. Future replication of this study which includes Spanish speaking populations would benefit from having at

least one Spanish speaking research assistant available to read the measures to patients. Medical assistants were helpful in describing the study to Spanish speaking participants in the present study but were not available to assist with other aspects of this study.

Sample for Qualitative Data

In utilizing grounded theory, which is an exploratory, qualitative methodology, limitations are to be expected. Firstly, in keeping with the recommended sample size of grounded theory, this current study included ten non-cancer chronic pain participants. The generalizability of these results are limited, although this limitation is offset by the diversity of the sample with thorough saturation of emergent themes. Participants included in this study were diverse across gender, opioid pain medication, experience and diagnosis of pain, longevity of pain, marital status and ethnicity. However, participants' backgrounds were not diverse across age, employment and socio-economic status.

Researcher Bias

Secondly, researcher bias is a relevant concern in qualitative research. In this study, the primary researcher conducted all interviews. Two research assistants served as auditors and assisted with transcription of data and coding. The primary researcher followed all recommendations for the exploratory process of grounded theory including memo writing, constant comparative method, theoretical sampling, gathering data until saturation occurred, and formulating theory which is derived from data. Adhering to grounded theory recommendations bolsters the rigor of the study, although limitations remain a possibility. While measures were taken to limit bias, it is still possible that the lead researcher's own perceptions may shape probing follow-up questions during the semi-structured interview. In the research team's review of all the transcripts, this did not

appear to be the case, but it remains a potential limitation. Researchers may have allowed their own perceptions to influence the interpretation of findings during the coding process. This limitation is offset by this study's use of three researchers within the research team to help in auditing the codes. There is also the possible limitation associated with difficulties accurately conceptualizing theory. There was a concerted effort, however, to minimize this possible limitation. For instance, the use of two additional auditors, consistent support from faculty who provided grounded theory mentorship, and the consistent review of literature during the emerging theory process helped ensure the accurate formulation of the grounded theory.

Voluntary Nature of Participation

Another possible limitation of this study includes the voluntary nature of participation. As is the case with any study of a voluntary nature, only participants who are willing and open to participation were included in the study. This has the possibility of presenting a limited sample, in that only those who are comfortable enough to disclose personal and clinical information were included in the study. Given that the participants volunteered to take part in this research study, they may have chosen to participate because of their discontent with chronic pain management, or disappointment with physical health treatments, medications and coping.

Self-report

Finally, participants self-reported all information both in quantitative and qualitative data collection. The interview protocol was semi-structured and purely based on self-reported data and information. As is the case with self-reports, the results may be affected by participants' accuracy of reported feelings, behaviors, and perceptions.

Results may be affected by participants' willingness to disclose, honesty, and the researcher's ability to establish a trusting rapport with the participant. Disadvantages of self-report data include participant bias, potential for answering in a way that may "please" the researcher or therapist, and inaccurate data (Chan, 2009). Chan (2009) described the advantages of self-report measures as they are easy to complete, they obtain the participants' view most directly, and are a means of gathering information about the person's opinion when observational data or outside observer ratings would not be sufficient.

Researcher Reflections

Throughout the study, the lead researcher bracketed personal experiences and engaged in memo writing to help support the research methodology and to help in awareness of biases. The following is a compilation of thoughts and feelings derived from the memos, in an effort to help illustrate the lead researcher's bracketing of her personal reflections throughout the study.

The discovery and exploration within this study produced many reactions in me throughout. One of my most significant personal learnings was my own surprise at how profoundly personal this research became to me throughout the course of the study. The many elements that I love about conducting therapy -- development of insight, exploration, discovery, relationship -- were, surprisingly, extremely important to the interviews that I conducted. I felt my clinical skills were a tremendous asset to my developing skills in grounded theory methodology. I felt guilty about this at first. Having been trained in so many quantitative research methods classes, I felt like I should not allow myself to become so engrossed in the research. I felt a pull to remain outside of the

research, in an effort to remain a totally objective researcher. As the study progressed, though, I understood that becoming lost in the research was one of the important hallmarks of grounded theory. In allowing myself access to the lived experiences of the participants, I believe the grounded theory was generated from the participants' views and ideologies, so that it was objectively subjective.

It did not take long for me to become lost in the research. During the first interview I conducted, the participant so appreciated being heard that she began to cry while describing her experiences of domestic violence that led to her experience of chronic pain. I was so tremendously moved, that I became attentive to the possibility of this study producing something new and profound theoretically that was going to give voice to many unspoken or unheard thoughts and feelings of chronic pain patients. That newness also encouraged a confidence in the exploration of my own challenges as a patient with chronic illness, and an acceptance and understanding that many other patients felt confused and overwhelmed at times, and that this was a part of themselves that was often ignored, or neglected in patient care. In sitting with this patient, a Hispanic, obese, single mother in her early forties, co-morbidly diagnosed with diabetes and COPD, and who had been dealing with chronic pain for over ten years; and hearing how alone and overwhelmed she felt as an abused Hispanic woman with severe health complications who felt ashamed and scared about her health and chronic pain, I started to wonder.

And my questions mounted with each new interview. How could it be that this interview produced so much discovery for participants? It seemed almost absurd at times. Could it be that after years of chronic pain management, some patients were

newly discovering their strengths and weaknesses related to their coping with chronic pain and the factors that might influence this? Sometimes I would ask a question, based on what seemed to me to be a very simple connection about social support, or the use of pain medication, and time would stand still for a moment. It seemed as though they had not been invited to reflect on that part of their life and coping – or, that they were busy coping with their chronic pain solely through the use of medication or means that appeared normative based on society or their culture, or familial messages from childhood, that thinking differently about coping was profound for them. I felt foolish during those silences – I felt myself wanting to make light of it, somehow, but I knew that the time elapsing was about a new experience. I was often stunned as the interviews unfolded.

Quite honestly, when I first began the interviews I was nervous. I was meeting with low-income, underserved chronic pain patients, who are at times easily irritable and frustrated, and collecting data in an already established clinic where I didn't know the staff and providers. I felt very much like the neophyte psychology student, with my clipboard and tape recorder. And in the first to the last interview, with very few exceptions, I determined that my anxiety was shared by the other. It wasn't easy to ask the question, but it wasn't easy to answer it either. About half way through the study, I learned not to turn the tape recorder off until after I left the office. In the early interviews, when I would turn the tape recorder off at the end to debrief, then the participant would continue to share and reflect on the process. It often felt to me, like the time of the interview was over, the anxiety abated a bit, and then there was another level of reflection that followed.

In conducting these interviews, I also recognized how difficult it was for me to ask people for their time. It was uncomfortable for me to ask patients to give up at least half an hour, but usually an hour, to meet with me, a total stranger. I was aware of how busy one's personal and professional life can be. If patients were employed, they needed to get back to work because money was scarce. Many were caretakers for other family members or their own caretakers were waiting for them to provide a ride back home. Offering a thank you note and a 20 dollar gift card to Target seemed insignificant at first. However, I quickly learned that for some participants this gift card was quite beneficial. Later on in the process, seeing the discovery that emerged from the patients, I became less hesitant and less uncomfortable. Throughout the interviews, I truly felt that the experience was mutually beneficial. And unsuspectingly, participants often left with a sense that the experience was meaningful to them, and that some change, albeit often small, had occurred. It was not uncommon for a participant to share, "You know, I never thought of it before, but I am glad you asked..." and then to later describe that the interview itself had caused them to contemplate, explore, or consider something new regarding their chronic pain or mood. This type of discovery was extremely exciting to watch.

Conclusion

To conclude, patients with low or well controlled depression, strong social support, and low to moderate ethnic identity are less likely to be at risk for aberrant drug related behavior and more likely to have success taking opioid medications for chronic pain management while functioning at a high level. Screening patients for these symptoms and psychosocial influences may assist providers to more effectively select

chronic pain patients for opioid treatment. These known markers or guidelines for chronic pain may greatly assist physicians. Physicians are often overwhelmed by chronic pain patients, feel pressure to prescribe opioids, question the credibility of pain reports, and worry about secondary gain and diversion. By providing guidelines for how to approach treatment with these patients and how to know which patients might be more likely to display true diversion and opioid misuse, providers should gain confidence and increase their ability to provide empathy with these patients. Moreover, integrating behavioral health therapy and antidepressant medication into treatment will assist pain patients in controlling their mood and decreasing symptoms of depression, the number one risk factor for opioid misuse and aberrant drug-related behavior. Primary care physicians could benefit from consulting with psychologists and calling upon these professionals to assist with the screening for risk factors and providing additional support to chronic pain patients and the provider. Psychologists can carry some of the responsibility and burden of these patients by providing efficacious individual and group therapy. Mood management, increasing social support, and increasing an individual's awareness of his or her beliefs about health outside of his or her culture, will assist in safer outcomes for chronic pain patients and increase the confidence in pain management for all who are involved.

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APPENDIX A - INFORMED CONSENT-1

Dear Madam/Sir:

I would like to invite you to participate in a research study which is being led by Courtney Morris, MEd, a doctoral student in the department of Counseling Psychology at the University of Denver. This project is being supervised by Dr. Cynthia McRae, a faculty member in Counseling Psychology with the Morgridge School of Education at the University of Denver. The study is entitled: "Predictors of drug-related aberrant behaviors in chronic pain patients: a mixed methods design." The purpose of this study is to explore predictors for the risk of drug-related aberrant behavior related to pain medication used for treatment of chronic pain.

Participation in this study is completely voluntary and you can terminate your participation at any time during the research without penalty. If you agree to participate, you will be asked to fill out one demographic questionnaire and five additional measures which may take from 15 - 35 minutes to complete. At any time during your participation, you may withdraw, or you may simply omit any questions you do not feel comfortable answering.

For your privacy, your responses will be kept confidential and will be identified by code number only and kept separate from information that could identify you. Only the researcher will have access to your individual data and any reports generated as a result of this study. However, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order or subpoena. Although no questions in this interview address it, we are required by law to tell you that if information is revealed concerning suicide, homicide, or child abuse and neglect, it is required by law that this be reported to the proper authorities.

Your results from the measures will also be kept in your medical records at Salud so that your primary care physician may follow up with you if necessary. Specifically, this is to ensure safety and to allow your physician to have the opportunity to provide further treatment recommendations if new information about your health is obtained from these results.

If you have any questions about this study, or would like additional information to assist you in reaching a decision about participation, please contact the principal investigator at (917) 747-4293 or at corymor@gmail.com at anytime. If you have any concerns or complaints about how you were treated during the interview, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or Sylk Sotto-Santiago, Office of Research and Sponsored Programs at 303-871-4052.

If you agree to participate, please sign, and date page 2. You may keep page 1 for your records. Thank you for your time.

AGREEMENT TO PARTICIPATE IN STUDY

If you agree to participate in the study described on page 1, please sign your name and date below. Thank you.

Study: Predictors of drug-related aberrant behaviors in chronic pain patients: a mixed methods design

I agree to participate:

Print Name

Signature

Date

By completing and signing this letter the participant has given her or his consent to participate

INFORMED CONSENT-2

Dear Madam/Sir:

I would like to invite you to participate in a second part of a research study which is being led by Courtney Morris, MEd, a doctoral student in the department of Counseling Psychology at the University of Denver. This project is being supervised by Dr. Cynthia McRae, a faculty member in Counseling Psychology with the Morgridge School of Education at the University of Denver. The study is entitled: "Predictors of drug related aberrant behaviors in chronic pain patients: a mixed methods design." The purpose of this study is to explore predictors for the risk of drug-related aberrant behavior related to pain medications used for treatment of chronic pain.

Participation in this study is completely voluntary and you can terminate your participation at any time during the research without penalty. If you agree to participate, you will be asked to meet with me, and possibly a translator, for an audio taped face-to-face interview. If you agree to participate you will be provided with a twenty dollar gift certificate to Target. During the interview you will be asked a number of questions regarding your treatment for chronic pain. The interview may last from 35 - 50 minutes, depending on your responses.

Following the interview, responses will be transcribed and you will have an opportunity to view the transcript once completed. For your privacy, audiotapes and transcripts will be kept confidential and your name will not appear in any report resulting from this study. However, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order or subpoena. Although no questions in this interview address it, we are required by law to tell you that if information is revealed concerning suicide, homicide, or child abuse and neglect, it is required by law that this be reported to the proper authorities.

If you have any questions about this study, or would like additional information to assist you in reaching a decision about participation, please contact the principal investigator at (917) 747-4293 or at corymor@gmail.com at anytime. If you have any concerns or complaints about how you were treated during the interview, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or Sylk Sotto-Santiago, Office of Research and Sponsored Programs at 303-871-4052.

If you agree to participate, please sign, and date page 2. You may keep page 1 for your records. Thank you for your time.

AGREEMENT TO PARTICIPATE IN STUDY

If you agree to participate in the study described on page 1, please sign your name and date below. Thank you.

Study: Predictors of drug related aberrant behaviors in chronic pain patients: a mixed methods design.

I agree to participate in the interview portion of this study and be audio taped:

Print Name

Signature

Date

By completing and signing this letter the participant has given her or his consent to participate.

APPENDIX B
INTERVIEW PROTOCOL

1. What caused your experience of pain?
2. How long have you experienced pain?
3. What are the primary pain sites or areas you experience pain?
4. What does your experience of pain feels like?
5. In what ways do you cope with your experience of pain?
6. What methods are the most helpful?
7. In what ways do you cope with your experience of pain without the use of medications?
8. Have you noticed if your experience of pain impacts your mood? In what ways have you noticed this happening for you?
9. Have you noticed if your mood influences your severity of experience of pain? Can you describe some examples of when you noticed this happening for you?
10. Who are the people who are closest to you in your life and your primary social support?
11. How have your doctors responded to your management of chronic pain?
12. How have they responded to your experience of pain?
13. Have you ever been in counseling or therapy for helping with your management of chronic pain? Was this helpful?
14. Have you ever been prescribed an antidepressant for assisting with the management of chronic pain?
15. Is there anything else that I didn't ask that you think would be helpful to share in helping me understand how you cope with managing your experience of chronic pain?

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Instructions: Please put a check mark next to all that apply or fill in the answer with what you feel best answers the question.

1. **In what year were you born?** _____ (please put a year)
2. **What is your gender?** _____ (please put male, female or other)
3. **What is your chronic pain condition?**

_____ (please list all that apply)
4. **If you are currently take pain medications, what are you currently prescribed?** (please list all that apply)

5. **How many other people do you live with?** _____
6. **How would you describe your current status?** (please put a check mark next to one that applies the most for you)
 - Single _____
 - Married/Partnered _____
 - Widowed _____
 - Divorced _____
7. **How would you describe your current employment status?** (please put a check mark next to one that applies the most for you)
 - Employed full time _____
 - Employed part time _____
 - Unemployed/Looking for work _____
 - Student Homemaker Retired _____
 - Unemployed/Receiving SSI services _____
8. **How many years of education do you have?** _____

9. **What is your race/ethnicity?** (please put a check mark next to one that applies the most for you)

_____ • Asian or Pacific Islander: Persons having origins in any of the peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, Japan, Korea, the Philippine Islands and Samoa.

_____ • African American/Black (not of Hispanic origin): Person having origins in any of the black ethnic groups

_____ • Hispanic - Persons having origins in any of the Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Cultures, regardless of ethnicity

_____ • Native American or Alaskan Native: Persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition

_____ • Caucasian/White (not of Hispanic origin): Persons having origins in any of the original peoples of Europe, North Africa or the Middle East

_____ • Mixed: **(Please specify)**

APPENDIX D
The Patient Health Questionnaire (PHQ-9)

Over the past 2 weeks, how often have you been bothered by any of the following problems?

0= Not at All 1= Several Days 2=More than Half the Days 3=Nearly Every Day

1. Little interest or pleasure in doing things?

0 1 2 3

2. Feeling down, depressed or hopeless?

0 1 2 3

3. Trouble falling asleep, staying asleep, sleeping too much?

0 1 2 3

4. Feeling tired or having little energy?

0 1 2 3

5. Poor appetite or overeating?

0 1 2 3

5. Feeling bad about yourself - or that you're a failure or have let yourself or your family down?

0 1 2 3

6. Trouble concentrating on things, such as reading the newspaper or watching television?

0 1 2 3

7. Moving or speaking so slowly that other people could have noticed. Or, the opposite - being so fidgety or restless that you have been moving around a lot more than usual?

0 1 2 3

8. Thoughts that you would be better off dead or of hurting yourself in some way?

0 1 2 3

Column Totals _____ + _____ + _____

Add Totals Together _____

PAIN SELF EFFICACY QUESTIONNAIRE (PSEQ)

NAME: _____ DATE: _____

For example:

5. I can do some form of work, despite the pain. (“work” includes housework, paid and unpaid work).

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

6. I can still do many of the things I enjoy doing, such as hobbies or leisure activity, despite pain.

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

7. I can cope with my pain without medication.

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

8. I can still accomplish most of my goals in life, despite the pain.

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

9. I can live a normal lifestyle, despite the pain.

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

10. I can gradually become more active, despite the pain.

0	1	2	3	4	5	6
Not at all					Completely	
Confident					Confident	

Source: Nicholas M.K. Self-efficacy and chronic pain. Paper presented at the annual conference of the British Psychological Society. St. Andrews, 1989.

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APPENDIX F

The Multigroup Ethnic Identity Measure (MEIM-R)

In this country, people come from many different countries and cultures, and there are many different words to describe the different backgrounds or ethnic groups that people come from. Some examples of the names of ethnic groups are Hispanic or Latino, Black or African American, Asian American, Chinese, Filipino, American Indian, Mexican American, Caucasian or White, Italian American, and many others. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in: In terms of ethnic group, I consider myself to be _____

Use the numbers below to indicate how much you agree or disagree with each statement.

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

- 1- I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs. _____
- 2- I am active in organizations or social groups that include mostly members of my own ethnic group. _____
- 3- I have a clear sense of my ethnic background and what it means for me. _____
- 4- I think a lot about how my life will be affected by my ethnic group membership. _____
- 5- I am happy that I am a member of the group I belong to. _____
- 6- I have a strong sense of belonging to my own ethnic group. _____
- 7- I understand pretty well what my ethnic group membership means to me. _____
- 8- In order to learn more about my ethnic background, I have often talked to other people about my ethnic group. _____
- 9- I have a lot of pride in my ethnic group. _____
- 10- I participate in cultural practices of my own group, such as special food, music, or customs. _____
- 11- I feel a strong attachment towards my own ethnic group. _____
- 12- I feel good about my cultural or ethnic background. _____

13- My ethnicity is

- (1) Asian or Asian American, including Chinese, Japanese, and others
- (2) Black or African American
- (3) Hispanic or Latino, including Mexican American, Central American, and others
- (4) White, Caucasian, Anglo, European American; not Hispanic
- (5) American Indian/Native American
- (6) Mixed; Parents are from two different groups
- (7) Other (write in): _____

14- My father's ethnicity is (use numbers above) _____

15- My mother's ethnicity is (use numbers above) _____

APPENDIX G

Social Provisions Scale

Instructions

In answering the next set of questions I am going to ask you, I want you to think about your current relationship with friends, family members, coworkers, community members, and so on. Please tell me to what extent you agree that each statement describes your current relationships with other people. Use the following scale to give me your opinion. (Hand a response card.) So, for example, if you feel a statement is very true of your current relationships, you would tell me “strongly agree”. If you feel a statement clearly does not describe your relationships, you would respond “strongly disagree”. Do you have any questions?

Strongly Disagree

Disagree

Agree

Strongly Agree

1

2

3

4

1. There are people I can depend on to help me if I really need it. _____
2. I feel that I do not have close personal relationships with other people. _____
3. There is no one I can turn to for guidance in times of stress. _____
4. There are people who depend on me for help. _____
5. There are people who enjoy the same social activities I do. _____
6. Other people do not view me as competent. _____
7. I feel personally responsible for the well-being of another person. _____
8. I feel part of a group of people who share my attitudes and beliefs. _____
9. I do not think other people respect my skills and abilities. _____
10. If something went wrong, no one would come to my assistance. _____
11. I have close relationships that provide me with a sense of emotional security and well-being. _____

12. There is someone I could talk to about important decisions in my life. _____
13. I have relationships where my competence and skills are recognized. _____
14. There is no one who shares my interests and concerns. _____
15. There is no one who really relies on me for their well-being. _____
16. There is a trustworthy person I could turn to for advice if I were having problems. _____
17. I feel a strong emotional bond with at least one other person. _____
18. There is no one I can depend on for aid if I really need it. _____
19. There is no one I feel comfortable talking about problems with. _____
20. There are people who admire my talents and abilities. _____
21. I lack a feeling of intimacy with another person. _____
22. There is no one who likes to do the things I do. _____
23. There are people I can count on in an emergency. _____
24. No one needs me to care for them. _____

APPENDIX H

COMM™

Current Opioid Misuse Measure

Please answer each question as honestly as possible. Keep in mind that we are only asking about the past 30 days. There are no right or wrong answers. If you are unsure about how to answer the question, please give the best answer you can.

Never	Seldom	Sometimes	Often	Very Often
0	1	2	3	4

1. In the past 30 days, how often have you had trouble with thinking clearly or had memory problems? _____
2. In the past 30 days, how often do people complain that you are not completing necessary tasks? (i.e., doing things that need to be done, such as going to class, work or appointments) _____
3. In the past 30 days, how often have you had to go to someone other than your prescribing physician to get sufficient pain relief from medications? (i.e., another doctor, the Emergency Room, friends, street sources) _____
4. In the past 30 days, how often have you taken your medications differently from how they are prescribed? _____
5. In the past 30 days, how often have you seriously thought about hurting yourself? _____
6. In the past 30 days, how much of your time was spent thinking about opioid medications (having enough, taking them, dosing schedule, etc.)? _____
7. In the past 30 days, how often have you been in an argument? _____
8. In the past 30 days, how often have you had trouble controlling your anger (e.g., road rage, screaming, etc.)? _____
9. In the past 30 days, how often have you needed to take pain medications belonging to someone else? _____
10. In the past 30 days, how often have you been worried about how you're handling your medications? _____

11. In the past 30 days, how often have others been worried about how you're handling your medications? _____
12. In the past 30 days, how often have you had to make an emergency phone call or show up at the clinic without an appointment? _____
13. In the past 30 days, how often have you gotten angry with people? _____
14. In the past 30 days, how often have you had to take more of your medication than prescribed? _____
15. In the past 30 days, how often have you borrowed pain medication from someone else? _____
16. In the past 30 days, how often have you used your pain medicine for symptoms other than for pain (e.g., to help you sleep, improve your mood, or relieve stress)? _____
17. In the past 30 days, how often have you had to visit the Emergency Room? _____

APPENDIX I
SOAPP®-R

Screener and Opioid Assessment for Patients with Pain

The following are some questions given to patients who are on or being considered for medication for their pain. Please answer each question as honestly as possible. There are no right or wrong answers.

Never	Seldom	Sometimes	Often	Very Often
0	1	2	3	4

1. How often do you have mood swings? _____
2. How often have you felt a need for higher doses of medication to treat your pain?

3. How often have you felt impatient with your doctors? _____
4. How often have you felt that things are just too overwhelming that you can't handle them? _____
5. How often is there tension in the home? _____
6. How often have you counted pain pills to see how many are remaining? _____
7. How often have you been concerned that people will judge you for taking pain medication? _____
8. How often do you feel bored? _____
9. How often have you taken more pain medication than you were supposed to? _____
10. How often have you worried about being left alone? _____
11. How often have you felt a craving for medication? _____
12. How often have others expressed concern over practitioners in clinical practice?

13. How often have any of your close friends had a problem with alcohol or drugs?

14. How often have others told you that you had a bad temper? _____

15. How often have you felt consumed by the need to get pain medication? _____
16. How often have you run out of pain medication early? _____
17. How often have others kept you from getting what you deserve? _____
18. How often, in your lifetime, have you had legal problems or been arrested? _____
19. How often have you attended an AA or NA meeting? _____
20. How often have you been in an argument that was so out of control that someone got hurt? _____
21. How often have you been sexually abused? _____
22. How often have others suggested that you have a drug or alcohol problem? _____
23. How often have you had to borrow pain medications from your family or friends?

24. How often have you been treated for an alcohol or drug problem? _____

APPENDIX J

Overview of Demographic Variables: Raw Frequencies of Variables

Demographics	Frequency Total	Group A: Opioids	Group B: No
Opioids			
	102	46	56
<i>Gender</i>			
Male	34	13	18
Female	68	30	38
<i>Age</i>			
18-25	4	1	3
25-35	15	7	8
35-45	21	11	10
45-55	36	16	20
55-65	22	9	13
65 and older	4	2	2
<i>Pain</i>			
Lower Back Pain	37	16	21
Leg	3	0	3
Knee	1	0	1
Fibromyalgia	15	6	7
Multiple Pain Sites	36	20	16
Hip	1	1	0
Ear	1	0	1
Abdomen	3	2	1
Osteoarthritis	4	0	4
Neuropathy	1	1	0
<i>Longevity of Pain</i>			
6 Months- 1 Year	6	3	3
1-2 Years	8	3	5
3-5 Years	35	13	22
6-10 Years	28	13	15
11-15 Years	9	4	5
16-20 Years	7	6	1
21 Years or More	9	4	5
<i>Language</i>			
English	96	44	52
Spanish	6	2	4

<i>Ethnicity</i>			
Hispanic	24	10	14
Caucasian	60	29	31
African American	2	2	0
Native American	3	1	2
Asian	2	0	2
Mixed	10	4	6
<i>Marital Status</i>			
Married/Partnered	13	8	5
Separated	25	9	16
Divorced	18	9	9
Widowed	7	4	3
Single	39	16	23
<i>Roommates</i>			
None	17	9	8
One	29	14	15
Two	13	6	7
Three or More	41	17	24
<i>Education</i>			
Under 12 Years	35	15	20
12/High School Grad	33	16	17
13-15 Years	21	9	12
15-20 Years	6	3	3
GED	7	3	4
<i>Employment</i>			
Full- Time	6	0	6
Part- Time	13	5	8
Unemployed	28	11	17
Student/Retired	6	2	4
SSI Funds	49	28	21
<i>Medication</i>			
None	8	0	8
Marijuana	2	0	2
Neurontin	1	0	1
NSAIDS	6	0	6
Antidepressant	28	0	28
Flexeril	7	0	7
Floricit	4	0	4
Vicodin	9	9	0

Percocet	18	18	0
MS Contin	1	1	0
Oxycontin	2	2	0
Morphine	7	7	0
Methadone	2	2	0
Tramadol	7	7	0
Fentanyl Patch	1	1	0

APPENDIX K

PRIVILEGED AND CONFIDENTIAL - CONTENT LICENSING AGREEMENT

Agreement dated as of September 12, 2011 between Inflexxion, Inc., with a principal place of business at 320 Needham St, Suite 100, Newton, MA 02464 (“Inflexxion”) and Courtney Morris, MEd., a counseling psychology doctorate student at the University of Denver, with a principal place of business at 3700 E. Jewell Avenue, #321, Denver, CO 80210 (the “Licensee”).

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LICENSEE: INFLEXXION, INC.:

EXHIBIT A

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Inflexxion, Inc. gives Courtney Morris, MEd. permission to use the Revised Screen and Opioid Assessment for Patients with Pain (SOAPP(COMM))®, both English and Spanish versions at the University of Denver as part of her psychology doctorate program. The title of the research project is "Predictors of Aberrant DrugRelated Behavior in Chronic Pain Patients: A Mixed Methods Design". The duration of the project is anticipated to be from October 1, 2011 to September 1, 2012. This permission does not include modifying the SOAPP-R and/or COMM tools, both English and Spanish versions, the scoring, or instructions for use in any way.

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3. Credit

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